

Additionality Guide

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ADDITIONAL IMPACTS

THE REFERENCE CASE (DEADWEIGHT)

ADJUSTING THE REFERENCE CASE
AND INTERVENTION OPTIONS

CALCULATING ADDITIONALITY

A Standard Approach to
Assessing the Additional
Impact of Projects

Method Statement

Second Edition

September 2004

Contents

Chapter	1	Introduction	01
Chapter	2	Additional Impacts	03
	2.1	Overview	03
	2.2	Assessing the additionality of outputs and outcomes	06
	2.3	Relevance by project type	08
	2.4	Target area or group	08
	2.5	Time period for the appraisal	09
	2.6	Quality of outputs and outcomes	10
	2.7	Maximising additionality	10
Chapter	3	The Reference Case (deadweight)	11
	3.1	Overview	11
	3.2	Measuring the baseline position	11
	3.3	Assessing the reference case	11
	3.4	Evidence from evaluations and research	12
Chapter	4	Adjusting the Reference Case and Intervention Options	15
	4.1	How to assess additionality of each option – the factors explained	15
	4.2	Leakage	15
	4.3	Displacement	19
	4.4	Substitution	21
	4.5	Economic multiplier effects	22
Chapter	5	Calculating Additionality	25
	5.1	Overview	25
	5.2	How to calculate additionality	25
	5.3	Illustrative worked examples by project type	26
	5.4	A worked example from the evidence base	34
	5.5	Gross to net additionality ratios	35
Chapter	6	Conclusion	37
		Glossary	39
		Bibliography	41
		Appendices	43

Introduction

1

This Guide explains how to assess the additional impact or additionality of a regeneration project. Additionality is the extent to which something happens as a result of an intervention that would not have occurred in the absence of the intervention.

It is the second edition¹ of the Guide and has been updated to reflect changes in the approach to additionality set out in:

- HM Treasury's guide to Appraisal and Evaluation in Central Government (referred to as 'The Green Book'²)
- guidance on Assessing the Impacts of Spatial Interventions (referred to as the 3Rs³ guidance) produced by the Office of the Deputy Prime Minister (ODPM)

Further details of the main changes since the last edition of this guidance are set out at Appendix A.

Project appraisal entails being clear about objectives, thinking about alternative ways or options of intervening to meet them, estimating and presenting the costs and benefits of each potentially worthwhile option and taking full account of associated risks. It is an important management tool and is essential to good decision-making because it:

- provides information to redesign projects in order to maximise their impact
- helps to test ideas and select projects that will work
- enables decision-makers to make the best possible decisions
- produces more effective and efficient projects that deliver real results

Central to good appraisal is the need to assess whether the project concerned will bring additional benefits over and above what would have happened anyway in its absence.

However, assessing the additional outputs⁴ and, where possible, outcomes⁵ of a project option is only one of the steps involved in appraising a project. This Guide is **primarily concerned with the methodology for calculating additionality**. There are many appraisal issues that affect the ability to measure additionality accurately, such as defining options, measuring outputs/outcomes and assessing the risk associated with each option. These issues are touched upon but not dealt with in any detail in this Guide.⁶

Additionality is relevant to various stages of a programme or project lifecycle (strategy development, project appraisal, monitoring and evaluation). However, whilst the same thought processes and logic applies to each stage, the focus of this Guide is on project appraisal.

The resources allocated to assessing the additional impact of a project should be proportionate to the nature and scale of the project. Projects that are novel, contentious, repercussive or involve a high level of risk will require more in-depth analysis, as will larger projects - such as those that involve a significant amount of public expenditure. Standard

¹ A first edition of this paper was prepared by AMION Consulting in association with Dr Peter Tyler in May 2001 - English Partnerships, A Standard Approach to Assessing the Additional Impacts of Projects - Method Statement.

² H M Treasury (January 2003) - Appraisal and Evaluation in Central Government. The Green Book is a high level discussion of the principles and best practice covering all issues related to project appraisal.

³ Regeneration, Renewal and Regional Development

⁴ Outputs are the things immediately produced by a project, such as land reclaimed or number of trainees.

⁵ Outcomes are the intended results of the project in terms of its key or ultimate objectives, such as sustainable increases in economic activity.

⁶ Further information on these issues can be found in the SQW/AMION Consulting Project Appraisal Training Pack produced for OffPAT, English Partnerships and the Regional Development Agencies.

projects of a type that have been delivered before will typically require less original analysis and can more easily draw on appraisals and evaluations of previous projects. For smaller projects, it will often not be feasible to undertake any detailed assessment of additionality. In these cases, project appraisal should be informed by a qualitative assessment and statement about project additionality, as well as programme and policy level assessments.

It is recognised that assessing additionality is not an easy task and that generally this will be carried out by specialists or those with experience in project development and appraisal. This Guide is aimed at economists and other suitably qualified and experienced professionals. However, it is also intended to be accessible to non-specialists in order to provide an understanding of the principles and importance of assessing additionality. The Guide does cover some material of a more technical nature and where it is necessary to use technical terms we have sought to explain each term or concept carefully and provide examples.

The Guide continues in the following five chapters:

Chapter 2: sets out the basic methodology and key issues in order to assess the additional impacts of a project

Chapter 3: discusses the reference case or deadweight - in other words what would happen anyway, without the project

Chapter 4: explains the adjustments that need to be made to the intervention and reference options to calculate additionality

Chapter 5: presents examples of how to calculate additionality

Chapter 6: sets out a number of concluding remarks

Additional Impacts

2

2.1 Overview

Most projects will have both positive and negative impacts. In appraising the effects of a project it is important that all of these are taken into account in order to assess the additional impact or additionality of the project – in other words, the net changes that are brought about over and above what would take place anyway.

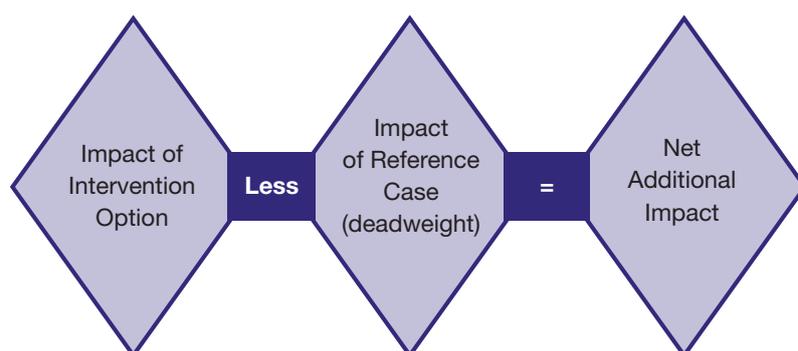
2.1.1 Definition

HM Treasury's Green Book states that an impact arising from an intervention is additional if it would not have occurred in the absence of the intervention. The ODPM's guidance on Assessing the Impacts of Spatial Interventions defines additionality as:

“The extent to which activity takes place at all, on a larger scale, earlier or within a specific designated area or target group as a result of the intervention”

In addition, greater quality can provide additional effects. The additional impact of a project is therefore the difference between the reference case position (what would happen anyway) and the position if the project (intervention option) was implemented (See Figure 2.1).

Figure 2.1: Net additionality framework



Additionality may relate to:

- **Scale:** a greater quantity of houses or jobs may be delivered in an area.
- **Timing:** activity may happen earlier than would otherwise have been the case. Where there are very large timing differences, it may be appropriate to discount the profiles of quantified outputs and outcomes. However, this is only likely to be an issue for a small number of projects. Further information on this can be found in Annex 7 of the 3Rs guidance.
- **Specific area or group:** the extent to which the target beneficiaries actually benefit from an intervention. For example, for a key worker housing project, will all of the occupiers be key workers?

And/or

- **Quality:** where the outputs/outcomes of an intervention cannot easily be valued, then the quality of the outputs/outcomes may be different because of a public sector intervention.

It is possible to assess the additional impacts of a project using two alternative approaches, as follows:

- **Top-down:** by assessing expected changes in overall indicators, such as the level of employment, total population or number of dwellings (this is also sometimes referred to as the outcome indicator approach).

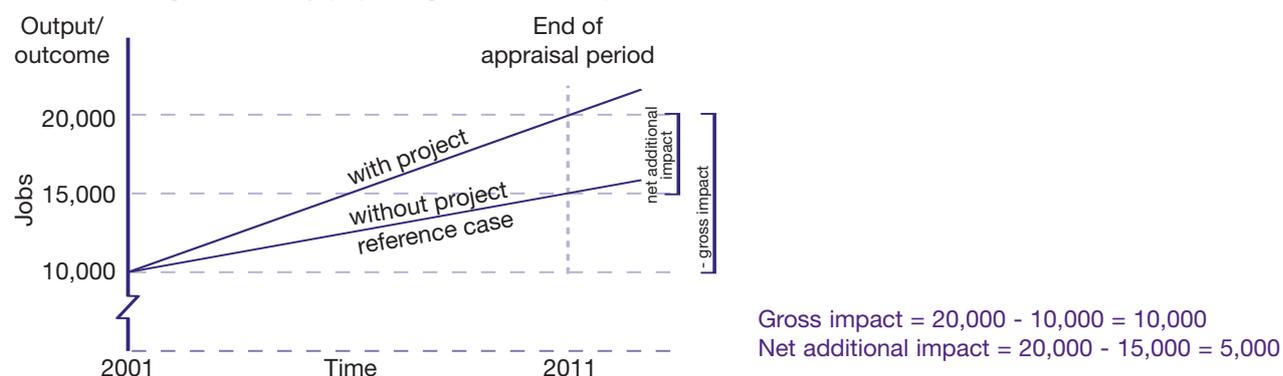
And/or

- **Bottom-up:** appraising the expected impact of individual actions or projects, through consideration of their likely outputs and outcomes.

At the strategy or programme development stage the focus will often be, albeit not exclusively, on top-down approaches, while at the project design and development stages, the principal emphasis is on bottom-up analyses. Both approaches are often used in evaluations.

Figure 2.2 below shows an example of top-down analysis of expected overall employment change in an area as a result of a project. It shows that, over a 10-year period, total employment in an area is expected to rise from 10,000 to 20,000. However, without the project, it is estimated that employment would have grown to 15,000 anyway. Thus, whilst the gross change in employment is 10,000, the net additional impact of the project is 5,000 jobs.

Figure 2.2: Assessing additionality (improving reference case)



If employment in the area were expected to decline to, say, 5,000 jobs if the project did not go ahead then the net additional impact at the end of the appraisal period would be 15,000 jobs (i.e. the difference between 5,000 jobs and 20,000 jobs). Further examples of various possible relationships between the project (or intervention option) and reference case are set out in Appendix B.

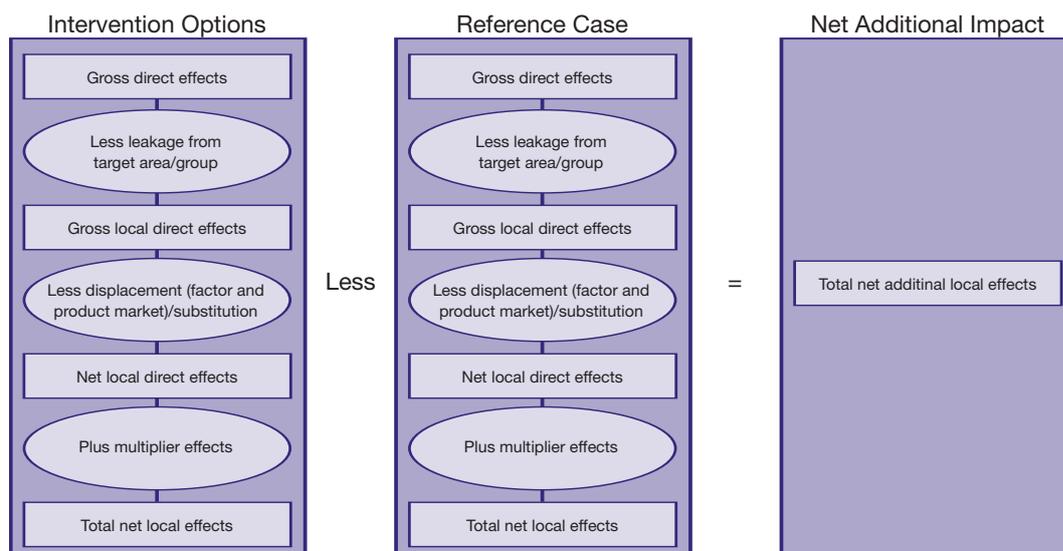
However, as noted above, in reality it will not normally be possible to appraise projects by dynamically modelling net effects at a specific target level. In the vast majority of cases there are serious difficulties in using such top-down approaches to assess what are usually highly marginal gross and net impacts. Therefore, the focus in project appraisal is upon a bottom-up or project specific approach to assessing additionality. In order to do this a clear analytical framework is needed.

To calculate the total net additional local effects of a project, a number of adjustments need to be made to both the intervention and reference case options. The approach adopted for assessing the additionality of a project is shown in Figure 2.3.

The figure introduces a number of important key concepts, as follows:

- **Intervention options:** these are the alternative ways or options that the public sector might choose in order to intervene to achieve its objectives. An estimate will need to be made of the level of target outputs/outcomes that would be produced under each of the alternative project 'do something' options. Further discussion of the generation of options is presented in Appendix C.
- **Reference case:** this is the estimate of what level of target outputs/outcomes would be produced if the project did not go ahead. It is the 'do nothing' or 'do minimum' option and the outputs/outcomes produced under this option are referred to as **deadweight**. In some cases, deadweight might be estimated by assuming that a proportion of the total gross additional local effects would go ahead anyway under the reference case. For example, if it were estimated that 25% of, say, 200 total net local training places would have been provided anyway, then some 50 total net local training places would be deadweight and the total net additional local would be 150. However, the preferred approach is to construct and quantify a specific reference case scenario.
- **Gross direct effects:** an estimate of the total effect of an intervention option or the reference case in terms of a specific output. This would mean consideration of wider consequential or induced, as well as the immediate effects. This would include, for example, the positive effect of a housing scheme on adjacent property values or in causing private sector housing development to take place which would, for example, not otherwise have happened or would have happened later. As such it is important to consider and include positive externalities associated with the project or programme.

Figure 2.3: Approach to assessing project level additionality - key components



- **Leakage effects:** the number or proportion of outputs (occurring under the reference case and the intervention options) that benefit those outside of the project's target area or group should be deducted from the gross direct effects. However, it is also important in an appraisal to consider positive and negative effects on other areas. Impacts outside the target area or group should not be ignored, particularly those in other priority areas or groups.
- **Displacement:** the number or proportion of project outputs (occurring under the reference case and the intervention options) accounted for by reduced outputs elsewhere in the target area should also be deducted.
- **Substitution effects:** this effect arises where a firm substitutes one activity for a similar one (such as recruiting a jobless person while another employee loses a job) to take advantage of public sector assistance. Again these effects need to be deducted.
- **Economic multiplier effects:** further economic activity (jobs, expenditure or income) associated with additional local income, local supplier purchases and longer term development effects then need to be added.

For very large projects, consideration will also need to be given to crowding out and crowding in effects. These effects occur where increases in public expenditure cause other variables in the economy to adjust resulting in either a decline (crowding out) or increase (crowding in) in private expenditure. These effects are normally considered only in very large appraisals concerned with regional and national level impacts. Further information on crowding out and crowding in effects is given in Appendix D.

It is important to recognise that the analytical framework presented above does have a number of limitations, in particular in accounting for macro-economic adjustments, which may reduce (or increase) the additionality of an intervention at wider spatial scales. This limits its appropriateness in discussing national economic efficiency impacts, unless it is combined with detailed macro-economic modelling.

Since it is not practicable, or indeed often possible, in the context of relatively small interventions to develop dynamic, full equilibrium models, the approach proposed is a form of partial equilibrium analysis. As such, it is a simplification and it is essential to ensure that the analysis is a sufficiently reasonable representation of reality. In a context of tighter labour and other markets, it may be important to assess price feedback effects and other adjustment mechanisms, such as changes in participation rates and migration flows. These effects can, in principle, be handled via the displacement adjustments although, in practice, this has often not occurred.

If prices are likely to change significantly as a result of a project, the analysis becomes more complicated. For example, when considering the additionality of economic activity associated with a commercial development, the following issues need to be considered:

- how far the individual development is additional.
- how far it represents a net addition to the stock of property taking account of effects in raising land prices or depressing rentals and the consequent effects of this on private sector development activity.
- how far the activity generated by the greater availability and/or reduced cost of property is additional.

Where a project results in effects "off the direct causal chain" the nature and additionality of these effects also need to be considered. For example, a project to provide homes or jobs for a particular target group might be judged a failure based on a narrow view of leakage but it may have had significant secondary benefits through "freeing up" homes or jobs which are taken up by the target group. It may be that different proportions for factors such as displacement need to be applied to each impact where the effects are not directly associated with the project.

The assessment of additionality is not a mechanistic process but depends on the appraiser’s judgement and knowledge of the project and the wider environment. It is important that these judgements are informed by evidence and the reasons for them explained. In order to assess the level of additionality it is necessary to consider how the project has affected market activity, as well as its impact on other public sector activities.

The Guide presents various estimates for the potential scale of each of the factors discussed above. However, significant care needs to be taken in using default or ready reckoner values. The following best practice framework for the use of these and other values is therefore suggested:

- **Best:** bespoke investigation using various data capture methods, such as surveys or the results of bespoke economic or other modelling.
- **Good:** values chosen through a review of previous evaluations recognising differences in:
 - the policy and location (e.g. geographic, demographic or economic differences)
 - the assumptions made in the original evaluation
 - significant changes in situation (due to time of investigation)
- **Adequate:** default values chosen from available guides, where the choice has been carefully considered and the reasoning explained.
- **Not adequate:** default values without consideration of any of the above. Values used without reference to origin/fitness for purpose.

2.2 Assessing the additionality of outputs and outcomes

Additionality is relevant to all outputs and outcomes. The aim of public sector intervention is to achieve desired outcomes. However, many outcomes (such as changing behaviours and attitudes) are difficult to measure and will often only occur sometime after a project has been implemented.

Thus, whilst projects are concerned with delivering outcomes, the focus of attention in project appraisals is often on assessing the net additionality of outputs.

It is important to identify project outputs⁷ that are expected to contribute to an improvement in the desired outcomes and for these outputs, where relevant, to consider leakage, displacement, substitution, multipliers and deadweight. However, it is important to recognise that outputs are necessary but not sufficient to deliver desired outcomes. Table 2.1 shows examples taken from the New Deal for Communities (NDC) Guide that illustrates related outputs and outcomes by project type.

	Examples of outputs	Examples of outcomes
Housing	Units refurbished, demolished, built	Improved housing conditions, changes in tenure, reduction of turnover, satisfaction with accommodation
Crime	Number of locks and entry phone systems installed, hours spent by a community police officer in schools, CCTV points installed	Reduction in volume of crime, reduced fear of crime relative to other areas
Health	Number of home visits by health outreach workers, new community health centre	Improved mortality rates, lower illness rates relative to other areas
Education	Number taking part in parent-school initiatives, number of contacts with truants, improvement to school facilities	Improved school attainment levels, improved school leaver destinations into employment and higher and further education

⁷ The 3Rs guidance differentiates between activities, which are the thing that is engaged in in order to deliver outputs, such as the process of constructing a house, and outputs. We are concerned with outputs, which are the results of that activity, such as the number of houses constructed.

Table 2.2: Assessing additionality of outputs by project type

Project type	Project category	Leakage	Displacement	Substitution	Multiplier effects	Reference case (Deadweight)
Commercial development	Economic	Always need to assess	May be displacement within commercial property market	May be relevant	Relevant to employment, investment and income associated with construction phase and occupation of the premises	Always need to assess
Housing	Social Economic	Always need to assess	May be displacement within housing market	May be relevant	May exist depending on local labour and materials used in construction. Generally not likely to be relevant except as part of long-term development multiplier effects	Always need to assess
Transport	Economic Environmental	Always need to assess	May, for example, affect modal split	Not likely to be relevant	May exist depending on local labour and materials used in construction. Also relevant to induced effects	Always need to assess
Environmental improvement	Environmental	Always need to assess	Not likely to be relevant	Not likely to be relevant	May exist depending on local labour and materials used. Generally, not likely to be relevant	Always need to assess
Business support	Economic	Always need to assess	Displacement may arise in relation to private sector business support (e.g. banks) and product and factor market displacement	May be relevant	Relevant to employment, investment and income	Always need to assess
Community and social	Social	Always need to assess	May be relevant	Not likely to be relevant	May be relevant, depends if local labour and materials used	Always need to assess
Crime prevention and community safety/health	Social	Always need to assess	Not likely to be relevant, although crime may be shifted elsewhere. This is a different form of displacement, which should be described and, where practicable, quantified in an appraisal	Not likely to be relevant	May be relevant depending on local labour and materials used	Always need to assess
Training	Economic	Always need to assess	May result in displacement of other provision	May be relevant - substitution of labour	May be relevant	Always need to assess

It is important that the outputs and outcomes are accurately estimated. A number of sources can be used to estimate the scale and timing of outputs and outcomes, including:

- project specific information, such as a business plan
- comparable projects
- consultation with experts
- standard ratios, such as floorspace to employment density by use⁸
- specific research
- previous evaluation results

HM Treasury has recently published work on the tendency for project appraisers to be overly optimistic (referred to as optimism bias) and to redress this tendency appraisers should make explicit, empirically based adjustments to the estimates of a project's costs, benefits and duration. Further guidance on optimism bias can be found in Section 5 of the Green Book.

2.3 Relevance by project type

All of the key concepts described in Figure 2.2 are relevant when it comes to considering the employment or economic outputs generated by a project. However, not all projects are concerned solely to generate employment or economic outputs and outcomes. Projects vary considerably in the outputs and outcomes they produce depending on whether they are targeted on regeneration, renewal or regional development issues relating to housing, crime, health, education or a wide range of other service areas. Whilst the net additionality of all project outputs and outcomes should be considered, it should be borne in mind that the applicability of the key concepts depends on the project type and category, as well as the individual project itself. Table 2.2 on the previous page examines a range of different projects when it is likely that each of the key additionality concepts (leakage, displacement, substitution, multipliers and deadweight) discussed previously may need to be addressed.

2.4 Target area or group

The level of additional outputs and outcomes of a project will depend, in part, on the area or focus of analysis. Thus, for example, the level of economic linkages - and therefore multiplier effects - will be greater if a larger spatial area is being considered. As a result, when appraising a project the spatial level and target group within that area against which the project is being assessed must be clearly specified. They should relate directly to the identified need (the rationale for intervention) and be wide enough to take into account spill over or unintended effects on other groups, areas or markets.

It is quite common in project appraisals to consider effects at different spatial levels. The four most often used geographical levels are: site, local/sub regional, regional and national. However, in other cases a specific policy priority area may be the appropriate level. Many project appraisals unless tasked otherwise concentrate on the site and local/sub-regional level. The appropriate target area should be assessed by thinking about the project rationale and objectives, the policy context and who is expected to be affected. For projects like a website or portal, the target area of benefit could be region-wide or national.

The issues associated with each of the four spatial levels are as follows:

■ Site

The site level is the immediate vicinity of the project. Very few regeneration projects should be assessed only at the site level, as it is rare that the costs and benefits will be concentrated in the actual area of physical activity. Even for very small projects, for example, a scheme to reclaim a fly tipping area for recreational use, the benefits will be much wider than just the improved visual amenity of the site itself. The area of benefit could be within, say, a one-mile radius of the site if this is the distance users will travel to make use of the facility.

■ Local/sub-regional

The impact at the local level would be assessed to determine the effect on local populations or markets. For projects that are expected to have sub-regional impacts the project may, for example, need to be appraised at the single or multiple local authority level depending on the spread of the costs and benefits.

The local level for projects that generate employment effects or other economic benefits is often considered to be within the relevant travel to work area or if this is not appropriate then a 10-15 mile radius of the site concerned. The precise delineation will depend on the density of the settlement pattern in relation to the location of people and business activity. For very rural areas it is usually more. For very urban areas it might well be less.

⁸ See, for example, English Partnerships (July 2001), *Employment Densities – A Full Guide*.

■ Regional

For projects which are intended to have regional impacts this is the level at which the costs and benefits should be measured. These will typically be very large projects, which generate outputs that significantly add to the stock of these types of outputs at a regional level. Given these regional impacts it would also be necessary to assess the impact of the project at a sub-regional and possibly even local level as the impacts (costs and benefits) may positively or adversely affect local populations or markets.

■ National

Few regeneration projects are likely to be considered at the national level as the costs and benefits of an individual project are unlikely to be of such quantity that they would change the position of a target group or market on such a large scale or wide geographical area. A project would have to deliver tens of thousands of jobs and/or millions of square metres of commercial floor space before its impact at the national level would have to be assessed.

When choosing the spatial area and target group for appraisal it may appear cheaper and easier to use people classifications or geographic areas for which there is existing data. However, if this does not accurately reflect the specific project target group or area then the measurement of the projects' outputs and outcomes both at the appraisal and the evaluation stage will be made more difficult, if not impossible. For example, for a project designed to improve housing conditions at the very local level of a large housing estate, it may be tempting to use existing local authority data on housing satisfaction at the district level to act as a baseline. Then subsequent years' data could be used for monitoring purposes because it is cheap and readily available. However, it will not enable a real measure of the outputs and outcomes of the project to be assessed because the more local experience, which could be better or worse, may not be discernible at the district level. It is often better to supplement existing data by further analysis or carry out additional surveys to obtain information that directly corresponds to the target group or target area.

Having thought through and clearly identified the target area and group, when measuring additionality it is worth noting that the level of displacement and size of the multiplier effect are likely to vary with the size of the area under assessment. The larger the area over which the benefits of the programme are being analysed, generally the higher will be:

- **the level of displacement:** because there is likely to be a greater number of enterprises/organisations providing the product or service that the project is seeking to provide and with which it will be competing. A high level of displacement will reduce the number of additional outputs/outcomes.
- **the size of the multiplier effects:** these are likely to be greater as there are more opportunities for economic linkages in terms of suppliers and local expenditure than there are in a smaller geographical area. Larger multiplier effects will increase the number of additional outputs/outcomes.

The level of leakage from a target area will often be lower as the target area grows, since there are likely to be a greater number of target beneficiaries able to access the target outputs. It is also worth noting that projects located on the boundary of an area designed to tackle spatial areas or groups are likely to suffer from higher levels of leakage than the same project more centrally located. This is because project benefits are likely to be more easily accessed by those in adjacent locations. As noted above, careful consideration needs to be given to what is the appropriate target area and group. A low level of leakage is desirable as, all things being equal, it will increase additionality and give better value for money.

2.5 Time period for the appraisal

The time period over which you are appraising the project should be set out and the reason for selecting it made clear. Normally the period chosen should be sufficiently distant to include all important costs and benefits. For physical assets it will usually extend to cover its useful lifetime. The residual value of any asset at the end of the appraisal period would need to be included in the appraisal.

Often the achievement of desired outcomes will occur only after many years following the project implementation. Outputs, on the other hand, will normally be produced earlier on. For example, reclamation of a brownfield site for housing development could generate five hectares of reclaimed land in years one and two of the project and 100 housing units and 10,000 sq m of commercial floor space in years three and four with no further outputs from year five onwards. However, the outcome of a thriving community may not occur until, say, year 10 or later.

In assessing the effect of a programme or project one of the issues that will need to be considered is whether activity is likely to happen earlier than would otherwise be the case.

In addition, the impacts of an intervention or policy will often change over time. Take a housing clearance and redevelopment project. During the early period there may be negative effects, due to demolition and the relocation of residents, although there could be employment opportunities in the construction industry. The main outputs and outcomes associated with new homes and communities will only occur later on.

2.6 Quality of outputs and outcomes

The emphasis in many assessments of additionality is often on quantitative indicators, such as the number of housing units produced by an intervention. However, in many cases these quantitative measures will not take sufficient account of the qualitative differences between intervention and reference case options.

An obvious example is where consideration is being given to an intervention, which produces a rather low number of net additional jobs, but these jobs are qualitatively different from those that would arise in the reference case. Similarly, an intervention may displace higher quality outputs and this needs to be reflected in the additionality assessment.

Where differences in the quality of outputs arise it may be appropriate to weight the outputs according to a scale, which reflects the quality aspects. Quality adjusted net additional outputs can then be more easily compared across options. As the quality of the jobs will often be affected by a consideration of what type of jobs are needed in an area it is not possible to propose a standard scale. However, often the wage or skill level of particular jobs will approximate many of the quality characteristics of the jobs.

The public sector sometimes has the opportunity to bring on board the private sector at different stages of a project's development and thus generate greater or lesser amounts of private sector investment. This is often a desired project outcome. However, earlier and greater investment by the private sector might, for example, lead to the same number but lower quality outputs and outcomes. In these cases, an explicit adjustment would be needed to weight the higher quality outputs associated with a public sector only option to ensure that like was being compared with like. The weighted outputs under the various delivery options would then be used to calculate the cost per unit of adjusted output/outcome and be taken into account in the value for money assessment.

2.7 Maximising additionality

Projects should be designed (or re-designed) so that their additional impact is maximised. It is unlikely that 100% additionality could be achieved, as not all factors will be within the control of the project developer.

The additionality of a project should be considered from the earliest stages of a project's development so that where possible leakage, displacement and substitution are minimised and potential multiplier effects are maximised (see Box 2.1 below). Wherever possible, projects should be designed to maximise additionally (or "design-out" non-additionality).

Box 2.1: Maximising additionality

Example 1: A project aimed at providing specialist business advice to new start-ups in a specific area could reduce the amount of leakage by setting out eligibility criteria based on the project objectives. These might, for example, include target area and size of turnover and/or number of employees per company.

Example 2: A project aimed at increasing the computer skills of local people could minimise displacement by checking that there are no other providers of similar training courses either within or outside the target area that the target beneficiaries would be able to access.

Example 3: A project to assist a large company to locate in a particular area aimed at increasing employment opportunities for local people could maximise the multiplier effects by putting in place local procurement and local supply chain development initiatives.

Example 4: A project aimed at providing community facilities in a particular spatial area could restrict bookings to activities that benefit the target population and thus reduce leakage of benefits.

The Reference Case (deadweight)

3

3.1 Overview

The reference case (previously referred to as the base case⁹) is the position in terms of target outputs and outcomes that would occur at the end of the project life if the project was **not** implemented. The quantification of outputs and outcomes under the reference case is referred to as deadweight.

Deadweight is a dynamic concept and involves judgement about, amongst other things, the economic, social and environmental trends or events that are planned or are thought likely to happen over the project period (but assuming the project did not go ahead). The forecast reference case can be better or worse than the existing position (known as the baseline position) depending on the view taken of what economic, environmental or social changes will take place over the project period.

It is not an easy task to estimate what would happen in the future if the project did not go ahead and the longer the appraisal period the more difficult it is to predict with any degree of accuracy what might happen to the target outputs/outcomes compared to the baseline position.

This section sets out the issues that should be considered when assessing the baseline position and modelling the future reference case scenario. It discusses the evidence from evaluations and sets out the key question that needs to be answered in relation to deadweight.

3.2 Measuring the baseline position

An early and key step in carrying out an appraisal is to measure the baseline position and trends. The baseline is the state of the economic, social or environmental context at the beginning of the project period. This is usually described quantitatively but depending on the nature of the project can often also involve qualitative descriptions of important features. An assessment of the policy context will also normally form part of a baseline assessment. Projects with economic objectives will generally focus on describing the 'economic state' of the target group or area in terms of the level of employment, unemployment, skills, job vacancies and industrial classification of employers in the travel to work area. Projects designed to promote community capacity building would draw on socio-economic statistics but are also likely to describe the existing infrastructure and agency relationships and other capacity indicators such as attendance at community events.

Projects designed to address economic and social problems, such as new housing for key workers in regeneration areas, will need to review a wide range of quantitative and qualitative baseline and trend indicators.

3.3 Assessing the reference case

The starting position for making an assessment about the likely reference case is to identify all the factors that will influence the target outputs and outcomes. For different types of outputs/outcomes different factors will be relevant.

Amongst the factors that may need to be considered are the following:

- likely changes in social, economic and environmental variables

⁹ The Green Book now uses the term base case to mean "the best estimate of how much a proposal will cost in economic terms, including an allowance for risk and optimism".

- the nature of the activity being considered
- evidence from past changes in the local and comparator areas
- the extent of market failure in the area concerned
- impacts of health and safety, legal or other statutory requirements
- impacts of other relevant existing and/or planned investments/policies by the private or public sector

Considering the impact of these contextual factors on the target outputs and outcomes will enable a reference case to be developed.

For a development project, particular attention should be paid to the assessment of the reference case when a site has a particular land-use planning allocation. Where the project involves the use of land, the planning context is likely to be an important consideration in determining the reference case. Where, for example, the planning authorities have made it consistently and unambiguously clear that housing development will not be permitted then it is not realistic to suggest that a piece of land proposed in the project intervention option to be used for commercial development will have as its reference case a residential use option. However, a planning allocation in itself does not warrant the allocation becoming the reference case. A market assessment or other evidence which shows that the site is likely to be developed for such a use is needed. Each case has to be judged on its own merits.

The best approach to estimating the scale of target outputs and outcomes under the reference case will normally be to construct a detailed 'do nothing' or 'do minimum' option. This will present what you think would have happened anyway without the project, based upon a reasoned case with supporting evidence. Where it is not possible for reasons of proportionality/resources or data limitations to construct a detailed reference case then it is possible to use an estimate of the proportion of activity that would have occurred anyway.

It is sometimes seen as convenient and perhaps conceptually easier to assume that nothing would happen if a project did not go ahead. However, it is highly unlikely that the current situation (the baseline position) will remain unchanged over the chosen appraisal period. The variables that affect local sustainable development are numerous and constantly changing. Robust justification would be needed to assume that the baseline and the reference case were the same.

When assessing the additional impacts of a project, care has to be taken that like is compared with like. Thus, the gross direct outputs and outcomes generated under the reference case must be adjusted for displacement, leakage and multiplier effects, where relevant, to arrive at a total net local reference case. The total net local impacts of the reference case are then deducted from the total net local effects of the intervention options to provide an estimate of their net additional impacts. Linked to this is the treatment of the costs associated with the reference option. In some cases this may be zero where there is no public sector intervention. Where the reference case is a do minimum and there is a cost involved this cost should be subtracted from the intervention cost option to arrive at a marginal cost. The net additional outputs should be considered in relation to the gross and net marginal public sector cost in the value for money assessment.

Table 3.1 opposite sets out a worked example of estimating the reference case - explaining the assumptions used to appraise a project aimed at providing key worker housing in a regeneration area over five years. Under the reference case, additional housing is expected to be 50 units based upon historical data and the expectation that the trend is likely to continue or improve slightly due to housing pressures. Consideration of the remaining additionality factors, based on an assessment of the social, economic and physical context, reduces this gross direct output from 50 housing units to 20 housing units likely to be provided and occupied by key workers.

3.4 Evidence from evaluations and research

Estimates of the level of activity that would have happened anyway are now made as a matter of routine in most evaluations of regeneration initiatives. There is thus a considerable body of evidence to refer to. The level of deadweight varies considerably across programmes reflecting the nature of the activity and the local economic circumstances. Evaluation evidence points to a figure like 25% for B1 office development being quite common. However, for retail development a figure like 50% or higher is more likely.

Evidence from the Evaluations of the Enterprise Zone Experiment (see Table A1 in Appendix E) shows that 38% of the companies that were located within an Enterprise Zone would otherwise have located elsewhere in the local area¹⁰ anyway. Some 4.8% of the companies would have delayed starting-up or would have been smaller, and only 1.6% of the companies would have cancelled starting-up. A further 24% of the companies would otherwise have been in the region. Many policy initiatives like Enterprise Zones have largely moved economic activity from less needy to more needy areas in policy terms. The scale of the effects reported is fairly typical. Table A2 in Appendix E indicates how deadweight varies according to whether the companies who occupy the sites concerned are new start-ups, branch plants or were present before the zone sites were designated. In general, deadweight was higher for branches and transfers. Table A3 in

¹⁰ Defined as a 10-mile radius of the sites that were the subject of the assistance.

Table 3.1: Establishing the reference case for key worker housing		
		Basis for assumption
Gross direct housing units	50	Local authority data shows that 10 housing units on average have come forward per annum in the target area over the last 10 years.
Less estimated leakage	(30)	The latest Census of Population results show that approximately 40% of those in employment in the area are employed in key services. Previous evidence has been that the proportion of key workers accessing new housing has been broadly similar to this. The project does not place any restrictions on the characteristics of occupiers.
Gross local direct effects	20	
Less displacement	0	Almost all the new housing will be in refurbished existing run down vacant stock. The built up nature of the area means there is little opportunity for new developments. Displacement is thus expected to be minimal.
Net local direct effects	20	
Plus multiplier effects	0	Whilst there may be economic benefits in terms of additional income and jobs arising from the use of local labour and materials in the design, construction and fit out of the new housing this is unlikely to lead to further new housing.
Total net local effects under the reference case	20	

Appendix E presents information disaggregated according to the activity that the company undertakes. Deadweight is relatively high for activities like retailing. These estimates can be regarded as illustrative. (Further sources of evidence on deadweight that explore how it varies according to business development initiatives are HMSO (1995) and Begg et al (1998).

Tables 3.2 and 3.3 provide deadweight information for four types of property occupiers: B1 Office, B2/B8 (general industrial/warehousing), Recreational and Retail taken from the evaluation of Enterprise Zones. Table 3.2 disaggregates the information according to whether the site concerned is in an area that although it has site specific problems has a fairly active local property market. Alternatively, Table 3.3 has site specific problems and is in a depressed area experiencing local property market failure. An illustrative small office project development is also given. The evidence indicates that deadweight can range from 25% to 40% in the local area with a relatively more favourable local area property market outlook. The deadweight rises to between 35% and 50% depending on the activity concerned in an area that can be considered to be experiencing entrenched market failure. Deadweight is often found to be lower ex-post where projects have been supported in areas that are less affected by market failure because at the project appraisal stage the additionality test has usually been very firmly applied. For further discussion of this point see Begg et al (1998).

Table 3.2: Deadweight factors by type of area - site related problems but active private sector				
Project type	Large 'flagship' project		Small project	
	Local area	Region	Local area	Region
B1 Office	0.25	0.25	0.33	0.33
B2/B8	0.35	0.35		
Recreational	0.30	0.30		
Retailing	0.40	0.40		

Source: Based on Rhodes et al (1994) and Enterprise Zone research (HMSO, 1995)

Table 3.3: Deadweight factors by type of area - market failure poor private sector activity

Project type	Large 'flagship' project		Small project	
	Local area	Region	Local area	Region
B1 Office	0.35	0.35	0.43	0.43
B2/B8	0.45	0.45		
Recreational	0.40	0.40		
Retailing	0.50	0.50		

Source: Based on Rhodes et al (1994) and Enterprise Zone research (HMSO, 1995)

The Final Evaluation of City Challenge (2000) identified a range of estimates of deadweight for different project types, including an allowance for the effect on the timing and scale of activity. The estimates of the level of deadweight were based upon two key sources - a beneficiary survey and programme and project manager consultations. Table 3.4 shows the deadweight estimates by project type. The assessment highlights that significant differences - for example, in relation to housing - can occur in the estimates by source.

Table 3.4: Estimated deadweight

Project type	Programme and Project Manager survey-based estimate (average)	Beneficiary survey-based estimate (average)	Overall average
Development schemes	40%	16%	28%
Housing	41%	10%	26%
Transport	37%	12%	24%
Environment and amenity space	39%	21%	30%
Business support	15%	36%	26%
Training and access to labour market	16%	15%	15%
Community and social	23%	15%	19%
Crime prevention	21%	16%	19%
Health	30%	23%	27%
Average across project types	31%	17%	24%

Source: DETR (2000)

3.4.1 Key question

The key question that needs to be answered in terms of deadweight is:

What level of outputs and outcomes would happen anyway without the project?

Adjusting the Reference Case and Intervention Options

4

4.1 How to assess additionality of each option – the factors explained

The Guide now goes on to consider leakage, displacement, substitution and multiplier effects in turn. For each type of effect we set out:

- (i) a simple definition
- (ii) a description of the factors influencing its scale. As we have already seen the size of the target area or area of benefit will significantly affect the various factors
- (iii) a review of the various approaches available to estimating the scale of each factor
- (iv) a brief review of the evidence available from evaluations and other research
- (v) a ready reckoner¹¹ – which simplifies the process of assessing the net additional impacts by providing a series of estimates of the scale of each effect. However, project specific information should always be used in preference to the ready reckoner, where it is available. In addition, evidence should be presented in an appraisal to justify the ready reckoner impact selected for each effect. The ready reckoner should never be used without reference to the project context
- (vi) the key questions to ask as part of a project appraisal in order to assess each factor

4.2 Leakage

4.2.1 Definition

Leakage

The proportion of outputs that benefit those outside of the programme/projects target area or group.

The target beneficiaries for many regeneration, renewal and regional development projects are individuals, organisations or businesses who form a formal or informal group, based on a shared characteristic or characteristics. For individuals these characteristics may, for example, include key worker status, graduates, ethnic minority, gender and/or employment status. Frequently projects are also designed to benefit groups and/or individuals living in a particular location/community or those in specific industries or with or without particular skills. The latter may or may not share other personal characteristics. As such, leakage is used to make some allowance for distributional issues.

Given the range of regeneration, renewal and regional development type projects and the contexts in which they are implemented, assessing the extent of benefit or output/outcome leakage is often not straightforward. A number of complex¹² and inter-related issues need to be addressed, including:

- **Users and beneficiaries:** there are cases where the output/outcome under consideration may relate to the usage of a facility. In some cases the users and beneficiaries will be the same – for example, the users of a community facility. In

¹¹The ready reckoner draws heavily upon the New Deal for Communities and Single Regeneration Budget Project Appraisal and Approval guidance issued by DETR in October 2000.

¹²There are particularly complex issues relating to the assessment of the other additionality factors. If displacement was to occur but to a non-target group - for example, from non-Small and Medium sized Enterprises (SME), when the target was SMEs – then it could be argued that this displacement should be ignored in relation to this particular output.

others the target beneficiary may be indirectly related to users. The latter may include the number of tourists visiting a new facility, where the beneficiaries are local people gaining jobs as a result of visitor expenditure.

- **Multiple target beneficiaries:** many projects will seek to benefit a range of beneficiary groups. For example, a new business incubator may wish to encourage graduates into employment and also to generate employment opportunities for disadvantaged local residents. The leakage rates for these would be different.
- **Leakage of physical outputs:** many appraisers have found it conceptually difficult to understand how leakage can relate to physical asset, such as commercial floorspace developed. Where users are from outside of the target group there is logic in reducing the floorspace claimed as being additional. However, this has not normally been done.
- **Is the area or the individual the target?** For example, how far is it the objective of small area regeneration policies to improve the lot of people who live in the area and how far to reduce the deprivation of the area? Thus, an appraiser would need to determine whether, if a resident secures employment as a result of the intervention and relocates, this is leakage or not.
- **Sources/evidence for estimated leakage for geographic areas or target groups:** the sources/evidence to inform an assessment of the level of leakage associated with a geographic area or a specific target group are different. In the case of the former leakage will usually relate to the place of residence of the beneficiary – for example, whether the person gaining a job lives within or outside of the target area. For jobs this can be informed by secondary source evidence on travel to work patterns. However, for specific target groups the sources upon which to make evidence-based judgements will often be less readily available. As such, in many cases, they will need to be drawn from project specific information (such as the project business plan), analogous projects (where data is available), or primary research.
- **Leakage implies that no value is attached to benefits that accrue to non-target beneficiaries:** where interventions are concerned with distributional issues this can be argued to be logical. However, where the rationale relates to a market failure argument and therefore economic efficiency it is not obvious why these potential benefits should be discounted, although this may relate as much to how the beneficiary group is defined. The positive and negative impacts on other areas or groups should also be considered in an appraisal.
- **Leakage in relation to outputs and outcomes:** the leakage of benefits from target groups is likely to be relevant to all outcomes, but as the above discussion demonstrates, can be more of an issue in relation to outputs.

Past experience has been that leakage has been reasonably consistently applied in relation to employment outputs/outcomes. However, it has either not been applied or has been applied inconsistently in relation to other output/outcome areas. In view of the importance of targeting particular beneficiaries in relation to regeneration, renewal and regional development projects, this Guide recommends that leakage be applied consistently to all outputs/outcomes, including outputs such as the number of houses developed. As such, the precise definition of the intended beneficiaries is a key part of the additionality assessment and project appraisal more generally. Where there is no specific target beneficiary then leakage will be zero. Thus, for example, if the objective is to increase take-up of homes in an area and it does not matter who the occupiers are, then no leakage will occur in this case.

However, as with the other components, the level of analysis and resource devoted to assessing leakage should always be related to the nature of the investment. Thus, a novel, contentious, repercussive, large and/or complex projects will require more effort, as will one where distributed affects are a particularly important objective.

4.2.2 Examples of potential leakage effects

The potential benefits of a project may be lost to an area or group in a number of ways and the following discussion considers the ways in which leakage may occur and may need to be assessed for a variety of project types.

■ Commercial development

This usually involves the reclamation or refurbishment of existing land or buildings or the bringing forward of new developments to provide increased capacity for commercial activity.

In terms of the beneficiaries of the building, this may be either the immediate users of the building, that is, the companies occupying space or those employed by the tenant companies. Where the rationale for the project is to create job opportunities for people in a particular area or target group and not all the space or jobs are likely to be taken up by those targeted, then leakage will need to be assessed. Similarly, if the development was brought forward with the intention of providing space for particular industry sectors or businesses at a particular stage in their development and the eligibility criteria is such that the possibility exists that these businesses or sectors do not use all the space then 'leakage' may occur and needs to be assessed. However, different leakage rates would apply if the target beneficiaries were both local residents gaining jobs and businesses within a specific sector.

Where a development takes place with no objective of attracting a specific group or sector and indeed is keen to attract newcomers to an area then leakage will be zero.

■ Housing

Projects designed to provide new or refurbished housing units will normally need to consider the possibility of leakage. A similar issue to floorspace would arise in terms of the physical units and the relationship between the character of the occupier and the target group. Where the housing units have been built with the intention of providing residences for particular groups or people from a particular area and it is possible that these intended beneficiaries will not take up the accommodation then leakage might occur and needs to be assessed.

Another form of leakage that might occur would be if existing local residents - who were the target beneficiaries - decided to 'cash in' and move out of the area.

■ Transport

Transport projects designed to benefit particular areas or groups of individuals can also have leakage associated with the outputs and outcomes they generate. The important point is to be clear about the reasons why the project is to be undertaken and what is the target outcome. A new road built to improve access to an industrial area will not have leakage of outputs if the intention was purely to increase the uptake of development space on the site. However, if the primary objective was to increase uptake of jobs on the site by residents in a particular area then there is a likelihood that some leakage of benefits will occur and these will increase depending on how accessible the new road makes the site to non-target beneficiaries and whether their usage is at the expense of the target beneficiaries.

■ Business support

A project aimed at providing intensive business support to early stage, high-tech, start-ups in the bio-science sector located within a particular area, assuming the eligibility criteria for determining who can receive support are strictly applied, is likely to have a very small amount of leakage associated with its outputs and outcomes. However, a project providing general business advice to an unspecified audience with the aim of generating jobs in a particular area is likely to have a greater degree of leakage associated with its activities as businesses may receive advice and generate jobs that do not go to target area residents or target groups.

■ Community and social

Projects aimed at improving the quality of life of a target group or those living in a particular area, such as provision of a community centre, playground or leisure facility may find it difficult to 'design out' all elements of leakage as it may be impracticable to develop or implement user policies that mean that non-target beneficiaries are excluded from using the facility provided. The level of leakage will depend on the degree to which access can be controlled. Other community projects such as crèches or health centres have the potential to limit users more directly by allowing only those within a catchment/target area to register. Nonetheless, there is still the possibility of a degree of leakage as non-target beneficiaries may be able to benefit from literature/workshops/emergency provision offered by the health centre or other activities offered by the crèche such as a summer play scheme. Where the health centre or crèche serves an area wider than the target area, there is likely to be a high level of leakage. Again an important consideration will be the extent to which the usage by non-target beneficiaries is actually at the expense of use by target beneficiaries.

■ Training/Education

Training projects can be developed with the objectives of improving skills and enabling trainees to gain a qualification. This can be aimed at the population as a whole, or, as is often the case, the training will be targeted at a particular subset of the population - such as mothers returning to work, the unemployed, ethnic minorities, graduates, those working in a specific industry and those in a specified occupation. Training is also frequently targeted at those living in a priority area. Even for those projects with a small target group it should be possible, in theory, to design out leakage with good project design and delivery using appropriate eligibility criteria, rigorously applied. In practice, of course, this is likely to prove difficult. Thus, the likelihood of non-target beneficiaries taking up training places should always be considered and the scale of potential leakage assessed.

4.2.3 Factors influencing the leakage effects

The level of leakage will be influenced by factors such as:

- how accessible the project outputs are to people from outside of the target area or from outside of the target group. This will depend upon both road and public transport linkages, as well as policies to target usage.
- the nature of the output, such as new jobs, that will be created and the ability of local residents or a particular target group to access or to compete for these. In the case of jobs, for example, this would depend upon the skills of the target population.
- the state of the economy in the target area - if the project is aimed at generating economic benefits and the economy in the target area is very buoyant with limited spare resources (labour, capital, etc) able to take up the opportunities offered by the project, then leakage may be high as capital and labour may have to be sourced from outside of the target area.

Projects should be designed to limit the level of leakage. Thus, for example, development projects which will accommodate new employment opportunities, and where the objective is to increase local employment, will often need to be combined with a package of training support for local residents to ensure that they have the skills required by the businesses that will occupy the new developments.

4.2.4 Approaches to estimating

In order to estimate the likely level of leakage, information can be used from the following sources:

- published secondary sources, such as travel to work information
- local business surveys undertaken by, for example, the Learning and Skills Council (LSC) or local authorities, will sometimes ask about the place of residence of employees. The local JobCentre Plus is also an important source of information upon which to draw
- labour market studies again produced by the LSC may also include information on skills and travel to work flows
- evaluations of previous programmes may have included estimates of leakage
- surveys/primary research

4.2.5 Evidence from evaluations and research

It is perhaps somewhat surprising that there is a relatively limited amount of research relating to the size of leakage effects. This undoubtedly reflects the difficult conceptual and measurement problems that exist in seeking to derive good estimates.

A study that provided a comprehensive insight into leakage from essentially property driven regeneration initiatives was the evaluation of the Enterprise Zone experiment (HMSO 1987, HMSO 1995 A and 1995 B). This study revealed that leakage effects depended heavily on the type of jobs created and thus the occupations of the people who got the jobs. Thus, the higher the number of managerial, professional and technical staff, the more likely it is that workers from outside the area targeted for regeneration would secure the jobs generated. Most other occupational groups had around 10% of staff recruited from outside the local area with the exception of skilled manual workers where the equivalent figure is around 20%. The study was also able to ascertain that in general companies in fairly deprived areas were filling about 40% of their vacancies from unemployed people in the local area.

The Final Evaluation of City Challenge (DETR, 2000) found that 38% of employees in businesses supported by City Challenge Partnerships lived outside of the City Challenge area and 11% outside of the local authority district.

4.2.6 Ready reckoners

Leakage effects can be assessed as follows:

Level	Description	Leakage
None	All of the benefits go to people living in the target area/the target group	0%
Low	The majority of benefits will go to people living within the target area/the target group	10%
Medium	A reasonably high proportion of the benefits will be retained within the target area/target group	25%
High	Many of the benefits will go to people living outside the area of benefit/outside of the target group	50%
Very high	A substantial proportion of those benefiting will live outside of the area of benefit/ be non-target group members	75%
Total	None of the benefits go to members of the target area/target group	100%

If leakage was anticipated to be very high (i.e. 75%) then only 25% of the project output (i.e. 100% – 75%) would be expected to benefit members of the target group or those living in the target area of benefit.

4.2.7 Key Questions - Leakage

In order to address the issue of leakage in an appraisal, the following questions need to be answered:

Who are the target beneficiaries?

Are the outputs/outcomes likely to benefit non-target group(s) at the expense of the target group(s)? If yes, by how much?

4.3 Displacement

4.3.1 Definition

Displacement

The proportion of project outputs/outcomes accounted for by reduced outputs/outcomes elsewhere in the target area.

4.3.2 Examples of displacement

Displacement arises where the project takes market share (called product market displacement) or labour, land or capital (referred to as factor market displacement) from other existing local firms or organisations. For example, a project may help a business to expand its operations. However, this business may take market share from other local firms producing the same goods or services, resulting in them losing trade and possibly staff. Alternatively, the supported business may use up scarce local factors of production (such as skilled labour) or bid up factor prices.

In terms of housing, a supported scheme may result in a decrease in demand in adjoining areas or elsewhere in the target area. Another longer term form of displacement could be the gentrification of an area, with low income residents being displaced. Displacement may also occur between tenures - for example, from private rented to social rented. In the latter case, issues such as the quality of accommodation would need to be considered in the appraisal.

Another form of displacement may occur if crime prevention initiatives cause criminal activities to happen elsewhere outside of the target area.

4.3.3 Factors influencing the scale of displacement

The scale of displacement effects will vary depending upon the nature of activity supported and local markets. For example, if the supported business has few local competitors then the level of product market displacement will be low. In terms of factor market displacement, a project may result in an increase in demand for construction workers. If these are in short supply, the result may be in delays to this or other projects or an increase in costs.

4.3.4 Approaches to estimating

An assessment of the likely level of displacement can be informed by:

- **market analyses:** relevant local markets (including product, property and labour) will need to be carefully assessed.
- **surveys and studies:** some local business surveys will ask questions such as where are your competitors located and where are your main markets. This information can be used to inform an assessment of displacement.
- **evaluations**

4.3.5 Evidence from evaluations and research

There is a considerable body of evidence concerning estimates of the scale of displacement associated with regeneration initiatives at the local and regional level. Prominent sources of recent evidence have been the evaluation of the WDA Property Initiatives and the evaluation studies described earlier.

The degree of displacement increases the larger the size of the area being considered. It also depends, crucially, on the type of economic activity that is being generated. Thus, retail and recreational property activities most typically have higher displacement than B1 office and B2/B8 (general industrial and warehousing) development. At the national level, displacement rates move to 95% or more and are never much less than 75%. Any reduction reflecting, for example, the extent to which a regeneration scheme involves the attraction of investment from outside the United Kingdom. At the local area, level displacement can vary very significantly. Some idea of the variation possible is demonstrated in Table 4.2. Evidence is given for two categories of project.

This table has been constructed using data from a number of sources. It shows that projects involving retailing and recreational elements are likely to have the highest level of displacement at the local level. At the regional level retailing activity involves some 70% of displacement. B1, B2/B8 are clearly more desirable in this respect.

Table 4.2: Type of area: site related problems but active private sector

Project type	Large 'flagship' project		Small project	
	Local area	Region	Local area	Region
B1 Office	0.12	0.22	0.20	0.30
B2/B8	0.17	0.25		
Recreational	0.40	0.65		
Retailing	0.50	0.70		

Source: Based on Rhodes et al (1994) and Enterprise Zone research (HMSO, 1995)

The degree of displacement also varies according to other characteristics of the companies. Thus, Table 4.3 reveals that smaller companies tend to be associated with higher displacement than larger companies. The reason for this is that small companies will have more tendency to trade a higher proportion of their output locally than larger companies. This evidence is taken from an evaluation of TEC Delivered Services (HMSO, 1995).

Table 4.3: Displacement effects by company size (%)

	Large 'flagship' project					All
	1-4	5-9	10-24	25-99	100+	
Local area displacement	51.9	44.0	44.4	40.2	35.0	40.0

Source: Based on DTI (1995).

The Final Evaluation of City Challenge assessed displacement for a number of project types. Displacement was considered to be low at the City Challenge level, but increased rapidly beyond the local area (see Table 4.4). At the local level, displacement ranged from 8% for training and education and business support projects to 17% for commercial development schemes.

Table 4.4: Displacement rates by company size (%)

Project Type	Within City Challenge	Immediately adjoining area	District	County	Region	UK
Development	17%	21%	38%	71%	89%	91%
Housing	10%	19%	38%	84%	100%	100%
Training/Education ¹³	8%	17%	31%	77%	78%	80%
Business support	8%	19%	31%	49%	75%	75%

¹³ Displacement/substitution in this case will only apply to jobs created through training as opposed to qualifications gained.

4.3.6 Ready reckoners

In the absence of specific local information the level of displacement can be assessed as follows:

Level	Displacement	Displacement
None	No other firms/demand affected	0%
Low	There are expected to be some displacement effects, although only to a limited extent	25%
Medium	About half of the activity would be displaced	50%
High	A high level of displacement is expected to arise	75%
Total	All of the activity generated will be displaced	100%

If the level of displacement was estimated to be low (i.e. 25%), then 75% of the outputs would be taken forward (i.e. 100% – 25%).

4.3.7 Key question - displacement

The following key question needs to be answered:

Will the project/option reduce existing activity from within (or outside) the target group or area? If yes, by how much?

It will be important to consider what effects this displacement will have on those other areas or groups.

4.4 Substitution

4.4.1 Definition

Substitution

This effect arises where a firm substitutes one activity for a similar one (such as recruiting a jobless person while another employee loses a job) to take advantage of public sector assistance. It can be thought of as 'within firm' displacement.

4.4.2 Examples of substitution

Substitution is a very specific form of non-additionality that has in the past been largely subsumed within the displacement effect and as a result not considered sufficiently.

If a grant was introduced to encourage local employers to recruit long-term unemployed people, some employers may replace existing employees with new workers in order to secure the grant. This would have no real impact and such substitution effects should be deducted in assessing the net output/outcome. However, care needs to be taken when assessing substitution effects if the target group are, for example, the long-term unemployed. In this case some degree of substitution may be considered acceptable.

Substitution has been an issue for wage subsidy programmes and work experience programmes. Employers have an incentive to dismiss unsubsidised workers and replace them with subsidised workers. A particular concern is that the finite duration of assistance could tempt employers to dismiss subsidised workers when subsidies run out and bring in a new cohort of subsidised workers.

Substitution could be an issue for regeneration programmes if the regeneration strategy aimed to persuade local employers to recruit more workers locally and fewer from outside the area. On the other hand, it might be argued that non-local workers could get other work anyway. However, it would be more of a concern if the attempt to increase local recruitment resulting in the new local workers taking the place of other local recruits.

Substitution could also arise in relation to other factor inputs such as land and property. A firm renting premises could, for example, take advantage of accommodation provided by the public sector at a reduced cost by relocating from its current building. In the case of a residential development, a developer could switch to undertake a public sector funded scheme, rather than an alternative scheme elsewhere in the local area.

4.4.3 Factors influencing the scale of substitution

The scale of substitution effects will vary depending upon the nature of the activity supported, the degree to which

substitution is an intended effect and the ability of recipients to engage in substitution where it is an unintended effect. Substitution will tend to be larger, for example, where no controls have been established on recipients regarding the potential substitution activities.

4.4.4 Approaches to estimation

An assessment of the likely level of displacement and substitution can be informed by:

- direct questioning of recipients – on their expected behaviour
- surveys and studies – of previous initiatives
- evaluations – for example, the Department for Work and Pensions has commissioned a number of evaluations that have assessed the level of substitution associated with an initiative. A full discussion of concepts and their application can be found in report ESR 14, available via www.dwp.gov.uk/jad/1999/esr14rep.pdf
- evidence from evaluations and research

4.4.5 Ready reckoners

Where there is no specific information on substitution the following effects could be applied appropriately:

Level	Description	Substitution
None	No substitution takes place	0%
Low	There are expected to be some substitution effects, although relatively limited	25%
Medium	About half of the activity would be substituted	50%
High	A high level of substitution is expected to arise	75%
Total	All of the activity would be strongly affected by substitution	100%

4.4.6 Key question - substitution

The key question in relation to substitution is as follows:

Will the project/option result in a firm substituting one activity for a similar one to take advantage of public funding? If yes, by how much?

4.5 Economic multiplier effects

4.5.1 Definition

Multiplier effects

Further economic activity (jobs, expenditure or income) associated with additional local income and local supplier purchases.

4.5.2 Types of economic multiplier

The economic impact (jobs, expenditure or income) of a project is multiplied because of knock-on effects within the local economy. Two types of multiplier can be identified:

- a **supply linkage multiplier (sometimes referred to as an indirect multiplier)** due to purchases made as a result of the project and further purchases associated with linked firms along the supply chain.
- an **income multiplier (also referred to as a consumption or induced multiplier)** associated with local expenditure as a result of those who derive incomes from the direct and supply linkage impacts of the project.

A number of impact studies have also identified a longer-term development multiplier associated with the retention of expenditure and population in an area.

Many appraisals use a combined or composite multiplier. Thus, for example, if at the regional level the supply linkage multiplier was 1.1 and the income multiplier 1.2, the composite multiplier would be 1.32 (i.e. 1.1 x 1.2). Applying the multiplier gives an estimate of the total direct and multiplier effects. For example, say a project created 100 jobs, then the total direct and multiplier effects would be 132, if the composite multiplier were 1.32. The multiplier effects alone would be 32 (i.e. 100 x 0.32).

4.5.3 Factors influencing the scale of multiplier effects

The scale of the multiplier effects will be influenced in particular by:

- **Supply linkage multiplier:** the extent of supply chain linkages in area of analysis. These linkages vary substantially by sector and area.
- **Income multiplier:** the proportion of additional income spent within area of analysis.

4.5.4 Approaches to estimating

There are a number of ways in which multipliers can be estimated, including:

- **Surveys of businesses and employees:** businesses can be asked about the local content of the purchases they make and this information can be used to calculate the local supply linkage multiplier effects, assuming that the proportion of expenditure net of non-recoverable indirect taxes incurred on local goods and services is similar throughout the supply chain¹⁴. In addition, estimates can be calculated of the income multiplier using data on local consumption patterns in the local economy¹⁵. Again the assumption is that behaviour is similar at each point in the supply chain.
- **Previous research/evaluations:** a number of previous studies have assessed the scale of multiplier effects. For example, the Scottish Tourism Multiplier Study sets out detailed information on the multiplier effects associated with different types of tourism activity.
- **Economic models:** various commercial and academic organisations have developed models of the national economy and of local economies. These can be used to assess the scale of multiplier effects resulting from a particular investment or change in the level of employment.
- **Input-output tables:** these tables provide estimates of supply linkages between sectors and can be used to estimate the supply linkage or indirect multiplier effects.

4.5.5 Evidence from evaluations and research

Over the years there have been a number of studies that have estimated the size of local income and supply linkage multipliers. The majority of the research has been undertaken to assess the scale of economic benefits produced by a range of regeneration initiatives. Probably one of the most comprehensive was the Evaluation of the Enterprise Zone Experiment (HMSO, 1987, 1995 A and 1995 B). Others have included the Evaluation of Regional Selective Assistance (HMSO, 1990 and 1993), an Evaluation of Garden Festivals (DoE, 1989) and an Evaluation of the Finance for Business Programme (Begg et al, 1998).

The scale of local income and supply linkage multiplier effects vary according to the mix of economic activity that exists in an area and the type of project that is being undertaken. Table 4.7 below is based on the extensive evidence generated by a number of studies including the Evaluation of the Enterprise Zone Experiment. It provides composite income and supply linkage multiplier estimates that are appropriate for four types of property related activity, namely B1 Office, B2/B8 (general industrial/warehousing), Recreation and Retailing. The estimates are provided for the local area and regional level. At the local level the range is between 1.21 and 1.38. At the regional level the range is between 1.38 and 1.56. Generally speaking retailing projects generate the lowest combined income and supply linkage effects.

Project type	Local area	Region
B1 Office	1.29	1.44
B2/B8	1.29	1.44
Recreation	1.38	1.56
Retailing	1.21	1.38

Source: Based on Rhodes et al, (1994) and Enterprise Zone research (HMSO, 1995)

¹⁴ If the purchases made at a particular point in the supply chain is x per annum and a proportion S is spent on local inputs the effects down the remainder of the chain is estimated as: $x(1+S+S^2+S^3+\dots+S^n)$ or $x.1/(1-S)$.

¹⁵ If the total net direct and supply linkage multiplier increase in local business turnover is E , a proportion m of this turnover is paid on average in net local incomes, and a proportion q of net local incomes is on average spent on the products of local businesses, then the total impact on turnover, including induced effects, may be estimated as: $E(1+mq+m^2q^2+m^3q^3+\dots+m^nq^n)$ or $E.1/(1-mq)$.

For specific sectors and projects, multiplier values can be higher than those shown in the table. For example, The Toyota Impact Study identified a composite employment multiplier at the level of Derbyshire, Nottinghamshire, Leicestershire, Staffordshire and the West Midlands of 1.6. Recent research by the DTI into broadband projects has identified multiplier effects ranging between two to four times the direct effect.

4.5.6 Ready reckoners

The ready reckoner values below express general ranges at the very local (neighbourhood) level and the regional level. The following range of multiplier effects can be used:

Level	Description	Composite multiplier (Neighbourhood level)	Composite multiplier (Regional level)
Low	Limited local supply linkages and induced or income effects	1.05	1.3
Medium	Average linkages. The majority of projects will be in this category	1.1	1.5
High	Strong local supply linkages and income or induced effects	1.15	1.7

Source: Based upon DETR (October 2000)

4.5.7 Key question – multipliers

The following key question needs to be answered in relation to multiplier effects:

How many, if any, additional outputs and outcomes will occur through purchases along local supply chains, employee spending rounds and longer term effects as a result of the project/option?

Calculating Additionality

5

5.1 Overview

This chapter sets out how to calculate additionality. It contains a number of illustrative worked examples of how to assess additionality for different project types. A worked example from the evidence base is also presented. In addition, the ratio of net additional to gross outputs is also discussed.

The principal focus of the examples in this section is on calculating, in a quantitative sense, the level of additionality associated with a project output. Within an appraisal, consideration would also need to be given to:

- timing effects
- quality

Wherever possible, the additionality of outcomes should be a key concern of an appraisal. A qualitative assessment of the likely level of outcome additionality should form part of an appraisal. This would mean answering each of the questions posed in the preceding section. However, the emphasis in most appraisals is on assessing the additionality of those outputs that are expected to lead to the desired outcomes. Applied **appropriately** the additionality framework has the potential to significantly improve practice. However, failure to do so correctly, could produce partial or misleading analyses.

5.2 How to calculate additionality

In order to calculate net additionality, the level of total net local activity under each option – intervention and reference case – needs to be assessed. This involves making adjustments, where appropriate, for leakage, displacement, substitution and multiplier effects. The total net additional local impact is then calculated by deducting the total gross additional local effects of the reference case from the total net local effects of the intervention options.

The calculation of the total net additional local impact of a project can be summarised using the following equation:

$$AI = [GI \times (1-L) \times (1-Dp) \times (1-S) \times M] - [GI^* \times (1-L^*) \times (1-Dp^*) \times (1-S^*) \times M^*]$$

Where:

AI = Net additional impact	L = Leakage	S = Substitution
GI = Gross impact	Dp = Displacement	M = Multiplier

* denotes reference case and hence deadweight

The multiplicative formulation described in the equation represents the relationship in its simplest form. It implies, for example, that leakage effects occur to the same extent to the gross effects, as they do to displacement and multiplier effects. For many projects, this may be a reasonable assumption. However, for others, more specific assessments may need to be made and detailed, individual calculations of each factor prepared.

The calculation should be based upon evidence-based judgements and involves being explicit about assumptions and the expected implications of a set of actions.

For example, if a project was initiated to create local jobs, the following issues would need to be assessed:

- **Leakage:** can local people physically get to where the job opportunities are expected to be? Do local people have the necessary skills to compete for the jobs? What linked programmes are in place to ensure local people can access the opportunities?
- **Displacement:** will the new jobs taken up by local people result in a reduction of other local people in employment? Have the potential adverse effects been minimised by targeting appropriate sectors?
- **Substitution:** will local employers just take on a local person and release another to take advantage of public funding?
- **Multiplier Effects:** will those local people who gain employment spend their income on goods and services that support local jobs? Will firms purchase more local goods and services?

5.3 Illustrative worked examples by project type

5.3.1 Business support

A business support project is proposed in order to help create jobs for local people in an area with high unemployment. It is expected to create 500 full-time equivalent jobs and the project's impact is being assessed at the neighbourhood level.

Local research by the LSC suggests that, given the recruitment and training support available, local people will take up most of the jobs and thus the level of leakage will be low. Without the support (the reference case) it is estimated that some 80 full-time equivalent local jobs would be created in the businesses supported at the end of the appraisal period.

There are a number of other competing firms in the area and the level of displacement is therefore expected to be medium. The businesses concerned are known to have strong local supply linkages and thus the multiplier effects are anticipated to be high. Leakage, displacement and multiplier impacts similar to those under the intervention option would be expected to apply to the reference case position.

Using the ready reckoners set out in chapter 4 the estimated level of total local net additional jobs can be calculated as shown in Table 5.1.

		Intervention option	Reference case	Additionality
A	Gross direct jobs	500	80	
B = A x 10%	Estimated leakage (low –10%)	50	8	
C = A - B	Gross local direct effects	450	72	
D = C x (1 - 50%)	Displacement (medium – 50%)	225	36	
E = C - D	Net local direct effects	225	36	
F = E x (1.15 - 1)	Multiplier (high – 1.15)	34	5	
G = E + F	Total net local effects	259	41	
H = G (Intervention option) - G (Reference case)	Total net additional local effects			218

Therefore the business support project is anticipated to create some 218 total net additional local jobs.

In undertaking an appraisal of a business support project, consideration would also need to be given to the net additional outcomes generated, such as increased economic activity (Gross Value Added).

5.3.2 Commercial development

As part of a programme to tackle under-use and dereliction within a run-down city centre, public sector support totalling £800,000 is being considered towards the demolition of a derelict building and construction of 8,000 sq m of workspace. The objective of the scheme is to bring new economic activity and jobs for local people into the city centre and adjoining

wards. The area has a large number of under-used and empty, derelict buildings. Over the last 10 years little commercial development has taken place either of a pre-let or speculative nature. The workspace will comprise offices (3,000 sq m) and industrial floorspace (5,000 sq m).

The local Business Link has advised that there is evidence of unmet demand from businesses in the area. They have also indicated that the businesses occupying the new space are likely to be in the lower end of the skilled manufacturing and service sectors, although some hi-tech businesses might locate there. Displacement is expected to be low, albeit slightly higher in terms of floorspace than jobs. Without the project it is estimated that 1,500 sq m of floorspace would be refurbished and brought back into industrial use anyway.

Due to the historically low economic activity and the multiple social problems, the area has become the target for a number of policy initiatives, with a total cost of £10million. The building and site are readily accessible by public transport and within walking distance of a number of residential areas in the local travel to work area, some of which are within the top 20% most deprived in the country. It is also accessible by car and public transport to other residential areas outside of the local area.

Table 5.2 below sets out the estimate of the net additional floorspace created.

		Intervention option	Reference case	Additionality
A	Gross direct floorspace (sq m)	8,000	1,500	
B = A x 25%	Estimated leakage (medium - 25%)	2,000	375	
C = A - B	Gross local direct effects	6,000	1,125	
D = C x 20%	Displacement (20%)	1,200	225	
E = C - D	Net local direct effects	4,800	900	
F = not applicable	Multiplier	N/A	N/A	
G = E + F	Total Net local effects	4,800	900	
H = G (Intervention option) - G (Reference case)	Total net additional local effects			3,900 sq m

The calculation of the number of net additional jobs created is summarised in Table 5.3.

		Intervention option	Reference case	Additionality
A	Gross direct jobs ¹⁶	230	97	
B = A x 25%	Estimated leakage (medium - 25%)	58	24	
C = A-B	Gross local direct effects	172	73	
D = C x 15%	Displacement (15%)	26	11	
E = C - D	Net local direct effects	146	62	
F = E x (1.1 -1)	Multiplier (1.1)	15	6	
G = E + F	Total net local effects	161	68	
H = G (Intervention option) - G (Reference case)	Total net additional local effects			93

¹⁶ The number of jobs able to be accommodated calculated using standard floorspace to employment density ratios, and allowing for an 80% occupancy rate.

The outcomes associated with commercial development will include net additional local employment and GVA generated by the project.

5.3.3 Housing

The public sector is seeking to promote the creation of new homes, particularly within mixed-use schemes, in an area containing a large number of historic buildings. Public sector support has been requested towards a project involving a former waterfront mill site that will deliver a mixture of commercial development and housing in a variety of new and refurbished buildings.

It is expected that the project will deliver 50 housing units and 2,000 sq m of commercial floorspace. Without public sector support it is likely that one of the old mill buildings on the site, which is in the best state of repair, would be brought forward by the private sector and would deliver 20 housing units. No speculative housing development has taken place on the site, although in the wider area there is evidence of unsupported private sector development along the rest of the river frontage. This has been reasonably successful to date. It is expected that the project will cause some decrease in the number of housing units built in the target area. There are a number of deprived communities living in sub-standard accommodation with associated disadvantages in the local area. However, the residents of these communities are not the sole target group and thus 'leakage' of benefits is not considered an issue in this case.

Table 5.4 sets out an assessment of the net additional housing units¹⁷ in sustained or long-term demand generated by this intervention option at the site level.

		Intervention option	Reference case	Additionality
A	Gross direct housing units	50	20	
B = A x 0	Estimated leakage - none	0	0	
C = A - B	Gross local direct effects	50	20	
D = estimated displacement	Displacement	0	0	
E = C - D	Net local direct effects	50	20	
F = not applicable	Multiplier	N/A	N/A	
G = E + F	Total net local effects	50	20	
H = G (Intervention option) – G (Reference case)	Total net additional local effects			30

¹⁷ Housing units are one of a basket of outputs of this project for which the net local additional effects would need to be calculated. The other outputs may include new business start-ups, jobs, business support and environmental outputs.

Table 5.5 considers the same output at the target area level.

Table 5.5: Housing development – at target area level (units in sustained demand)				
		Intervention option	Reference case	Additionality
A	Gross direct housing units	50	20	
B = A x 0	Estimated leakage - none	0	0	
C = A - B	Gross local direct effects	50	20	
D = estimated displacement	Displacement	15	5	
E = C - D	Net local direct effects	35	15	
F = not applicable	Multiplier	N/A ¹⁸	N/A	
G = E + F	Total net local effects	35	15	
H = G (Intervention option) – G (Reference case)	Total net additional local effects			20

As an alternative example, a project aimed at improving housing conditions could fund the refurbishment of existing vacant units in order that they are expected to be in long-term or sustained demand. Where it is expected that 10% of the 100 units refurbished would have taken place anyway through annual local authority spend then this represents deadweight. If the refurbishment of the 100 units means that a local provider who would have built 50 new houses now will build only 10 new houses then displacement is some 40 housing units. Leakage would apply if non-target community residents occupied the refurbished housing units. Some wider benefits might result as other residents in the area carry out improvements to their properties as a result of the project.

Further details of how to assess the additionality of housing projects are included at Appendix F.

5.3.4 Transport

Public sector regeneration funding is being considered towards the construction of a new road, which will link new social housing development and an existing residential area with an established industrial area and the main public transport interchange which is about to be extended. The objective is to enable current isolated communities and disadvantaged individuals to access employment and other opportunities. The road will also enable pedestrians and cyclists to access the industrial areas more quickly and more safely than the existing route, which would require crossing a busy dual carriageway.

The road will be approximately 1.5km long and will become an adopted road on completion. There are no other public sector or private sector funders. The target beneficiaries are local residents who are expected to account for 80% of usage - giving a leakage rate of 20%.

Given the main users of the road and purpose of the project, it is not expected that the road would be constructed by the private sector in the planned location or that any alternative route would be constructed in the foreseeable future that would serve the same purpose. It is possible that the owner of the industrial area may construct a small portion of the road to further facilitate road traffic access into and out of the industrial park. However, under the reference case none of the users would be from the local community (a leakage rate of 100%). The additionality of the project outputs, in terms of number of trips by target beneficiaries is assessed in Table 5.6 overleaf.

¹⁸ There may be multiplier effects of the expenditure associated with the housing construction, the 'not applicable' refers to the likelihood that this spend will result in more housing units being built.

Table 5.6: Additionality of trips - annual number of trips by target beneficiaries

		Intervention option	Reference case	Additionality
A	Gross direct trips on new road	150,000	200,000	
$B = A \times 0.2$	Estimated leakage (Intervention option) - 20%	30,000	N/A	
$B = A \times 1$	Estimated leakage (Reference case) - 100%	N/A	200,000	
$C = A - B$	Gross local direct effects	120,000	0	
D = not applicable	Displacement	N/A	N/A	
$E = C - D$	Net local direct effects	120,000	0	
F = not applicable	Multiplier	N/A	N/A	
$G = E + F$	Total net local effects	120,000	0	
$H = G$ (Intervention option) - G (Reference case)	Total net additional local effects			120,000

The net additional local change in accessibility and the associated benefits (such as enhanced quality of life and increased economic activity) would need to be assessed in order to measure outcome additionality.

5.3.5 Environmental

A request for public sector support has been received to reclaim a two hectare site currently used for unofficial fly-tipping in order for it to be brought back into use as an adventure playground and country park. There is substantial support for this at the local level as there are few alternative facilities nearby. Over the years the site has become increasingly neglected and unsightly, it is also a health hazard. The project site is adjacent to a number of residential areas and is easily accessible by pedestrians, cyclists and motorists. The areas from which pedestrians and cyclists are likely to come are high priority areas in terms of social need. Car borne users might come from a wide range of areas. However, the facility is not targeted at any specific group or area. Under the reference case, without public sector regeneration support, the site would be fenced off in order to prevent further fly-tipping, although a small playground would be provided.

The additionality of the hectares of land reclaimed for soft end use is assessed in Table 5.7.

Table 5.7: Additionality of land reclaimed

		Intervention option	Reference case	Additionality
A	Gross direct hectares of land reclaimed	2	0.25	
$B = A \times 0$	Estimated leakage - none	0	0	
$C = A - B$	Gross local direct effects	2	0.25	
D = not applicable	Displacement	N/A	N/A	
$E = C - D$	Net local direct effects	2	0.25	
F = not applicable	Multiplier	N/A	N/A	
$G = E + F$	Net local effects	2	0.25	
$H = G$ (Intervention option) - G (Reference case)	Total net additional local effects			1.75

The outcome additionality associated with environmental projects would need to consider, for example, the net additional local impact on quality of life. Alternatively, measures such as the enhancement in property values or willingness to invest could be considered for the intervention and reference case options.

5.3.6 Community and Social

A comprehensive package has been developed aimed at addressing the social, environmental and economic issues faced by a rural area. As part of the package, the public sector is appraising a project comprising the acquisition of a site, construction and operation of a 250 sq m community centre. The centre will be used for a wide range of purposes, including toddler groups, after school club, training in literacy and numeracy, outreach for Citizen's Advice Bureau (CAB) sessions, community meetings, lectures and events and it will also enable computer training and act as an information access point. Many of these activities, such as CAB sessions, do not currently take place in the local area.

Table 5.8 shows the calculation of the additionality of the number of community meetings involving more than 5% of target population¹⁹.

		Intervention option	Reference case	Additionality
A	Gross direct number of meetings total attendance of more than 5% of target population	50	5	
B = A x 10%	Leakage (intervention option) - low (10%)	5	0	
B = A x 0	Leakage (reference case) - none	0	0	
C = A - B	Gross local direct effects	45	5	
D = C x 0	Displacement - none	0	0	
E = C - D	Net local direct effects	45	5	
F = not applicable	Multiplier	N/A	N/A	
G = E + F	Net local effects	45	5	
H = G (Intervention option) - G (Reference case)	Total net additional effects			40

The capital cost of the centre will be fully funded by the public sector and income from charges will help to pay some of the running costs. The target area, which the centre is intended to serve, is quite large geographically, containing five small villages within a five mile radius of the centre with a combined population of 1,500 people. It is expected that the majority of users will come from the target area although it is possible that for a small number of the events and activities a number of the users will come from outside of the target area. For example, the CAB sessions might attract users from outside of the target area, as might a number of training sessions. In the absence of the community centre the small parish hall would continue to be used as it is at present for a limited range of local activities such as the toddler group and lectures of local interest. It is likely that the parish hall will continue to be used at the same level regardless of whether or not the community centre is built.

¹⁹ This is one of a number of relevant outputs where the additionality of the project's outputs would need to be assessed. The other might include numbers of trainees and crèche places provided/used.

The additionality of the number of community users of CAB outreach services is shown in Table 5.9.

Table 5.9: Additionality of CAB usage				
		Intervention option	Reference case	Additionality
A	Gross direct	66	11	
B = estimated leakage	Leakage (specific estimate)	13	0	
C = A - B	Gross local direct effects	53	11	
D = C x 0	Displacement - none	0	0	
E = C - D	Net local direct effects	53	11	
F = not applicable	Multiplier	N/A	N/A	
G = E + F	Total net local effects	53	11	
H = G (Intervention option) -G (Reference case)	Total net additional local effects			44

Again, the outcome associated with such projects would principally be based around net additional improvements to quality of life. For very large projects, it would be possible to use survey-based contingent valuation exercises to measure such effects.

5.3.7 Crime prevention and community safety

A potential investment in Closed Circuit Television (CCTV) is being considered to help reduce the level of car theft, burglaries, violent attacks and street crime. The police have been consulted and they have advised that the measure is likely to be effective and could, for example, reduce the number of car thefts by 50% from 100 per annum to 50 or fewer. No other source of funding is available. The police have advised that they will shortly be implementing a number of new initiatives that are aimed at reducing crime in the area, with a target reduction of at least 10%. If the CCTV were installed those new initiatives would not happen. The target beneficiaries are those suffering from crime. Crime could be displaced to other areas. However, in this case, such displacement is not expected to happen.

As a further example, a project aimed at reducing fear of crime might install locks and entry phones in 50% of the 200 houses in the target community. If 10% of homes installed phones and locks at their own expense then deadweight would be 10% (20 homes). Leakage is likely to be zero as the eligibility criteria will limit installation to homes in the target area. There are also wider effects that might be relevant and worth considering where a project's success encourages those outside the target area to adopt new practices. In this instance if the adjacent community recognised the benefits of installing locks and entry phones and 10 locks and phones were fitted, which would otherwise not have been, then this would increase the additional impact of the project, if the target area also included these homes. However, the initiative may have the effect of displacing crime to other areas and thus potentially increasing the fear of crime in these areas.

Table 5.10 sets out a calculation of the additionality of the reduction in car thefts²⁰.

Table 5.10: Additionality of reduction in car theft				
		Intervention option	Reference case	Additionality
A	Gross reduction in car thefts	50	10	
$B = A \times 0$	Estimated leakage - none	0	0	
$C = A - B$	Gross local direct effects	50	10	
D = not applicable	Displacement	N/A	N/A	
$E = C - D$	Net local direct effects	50	10	
F = not applicable	Multiplier	N/A	N/A	
$G = E + F$	Net local effects	50	10	
$H = G$ (Intervention option) - G (Reference case)	Total net additional local effects			40

5.3.8 Training and education

An Information Technology training programme is proposed, targeting a specific neighbourhood. Evidence of residence in the target area will be a criterion for eligibility to ensure no leakage of benefits outside of the area. This course will involve the provision of one week (30 hours) of intensive training per trainee in a range of software packages, together with job search support. There are already a number of training providers serving the local area, although the nature of the training is more limited in its scope and duration and it is not expected that this project will cause a reduction in demand for the existing training provision. In appraising the project it will also be essential to consider these qualitative aspects of the project. It is estimated that of the 40 trainees, perhaps eight of them would have undertaken another comparable course available elsewhere in the absence of this project.

Table 5.11 shows the calculation of the additionality of the number of trainees.

Table 5.11: Additionality of training places				
		Intervention option	Reference case	Additionality
A	Gross direct trainees	40	8	
$B = A \times 0$	Estimated leakage - none	0	0	
$C = A - B$	Gross local direct effects	40	8	
D = not applicable	Displacement - none	0	0	
$E = C - D$	Net local direct effects	40	8	
F = not applicable	Multiplier	N/A	N/A	
$G = E + F$	Total net local effects	40	8	
$H = G$ (Intervention option) - G (Reference case)	Total net additional local effects			32

²⁰ Car theft is, again, just one of a number of relevant outputs that could measure the additionality of the project. Others include reduction in burglary and personal attacks and in the fear of crime.

As a further example, a project aimed at improving school attainment levels may improve school facilities. Where it is expected that a portion of these facilities would have been improved without the project going ahead this would be deadweight. If as a result of the new facilities, existing facilities were decommissioned before they were no longer fit for purpose then this would be displacement. If the facilities were used by non-school users then this could be leakage depending on the objectives and target beneficiaries. The size of the multiplier effect would depend on the amount of local labour and local materials used in the construction and operation of the new facilities.

5.3.9 Health

A project aimed at lowering mortality rates may build a local community health centre. A full appraisal of such a project would involve consideration of health impacts. This would normally take account of changes in life expectancy (including expected life years where lives are lost or saved) and changes in quality of life. This approach is known as the quality-adjusted life year (QALY). However, in the case of this example, we are considering only the additionality of the usage of the facility.

If existing facilities had to close down because of the new facilities, there would be some displacement. It would also be necessary to consider how the target population might otherwise have obtained medical advice. All non-target users would be classified as leakage. The wider effects might be that non-target but priority population in an adjacent area will adopt the good health practices of the target community as a result of the health centre.

5.4 A worked example from the evidence base

Tables 5.12, 5.13, 5.14 and 5.15 show the calculation of the net additional employment impact of various B1 office projects, based on actual evidence from evaluations. Both the gross effects and the net additional effects at the local and regional level are similar in each case because the higher levels of displacement are offset by the higher multiplier effect.

Table 5.12: Project type B1 Office - large flagship in area with site related problems but active private sector		
Assume 20 hectares, plot ratio of 25%, employment density 23.2 (sq m per job) and occupancy rate of 95%		
	Local area	Region
Gross jobs	2,050	2,050
Displacement activity (%)	12%	22%
Supply linkages multiplier	1.17	1.20
Income multiplier	1.10	1.20
Deadweight (%)	25%	25%
Net jobs	1,740	1,720

Source: Based on Rhodes et al (1994) and Enterprise Zone evaluation evidence (HMSO, 1995)

Table 5.13: Project type B1 Office - large flagship in area with market failure and poor private sector activity		
Assume 20 hectares, plot ratio of 25%, employment density of 23.2 (sq m per job) and occupancy rate of 85%		
	Local area	Region
Gross jobs	1,830	1,830
Displacement activity (%)	8%	18%
Supply linkages multiplier	1.13	1.16
Income multiplier	1.10	1.20
Deadweight (%)	35%	35%
Net jobs	1,360	1,358

Source: Based on Rhodes et al (1994) and Enterprise Zone evaluation evidence (HMSO, 1995)

Table 5.14: Project type B1 Office - small project in area with site related problems but active private sector

Assume 1 hectare, plot ratio of 25%, employment density of 23.2 (sq m per job) and occupancy rate of 97%

	Local Area	Region
Gross jobs	105	105
Displacement activity (%)	20%	30%
Supply linkages multiplier	1.17	1.2
Income multiplier	1.10	1.2
Deadweight (%)	33%	33%
Net jobs	72	71

Source: Based on Rhodes et al (1994) and Enterprise Zone evaluation evidence (HMSO, 1995)

Table 5.15: Project type B1 Office - small project in area with market failure and poor private sector activity

Assume 1 hectare, plot ratio of 25%, employment density of 23.2 (sq m per job) and occupancy rate of 87%

	Local Area	Region
Gross jobs	94	94
Displacement activity (%)	10%	20%
Supply linkages multiplier	1.13	1.16
Income multiplier	1.10	1.20
Deadweight (%)	43%	43%
Net jobs	60	60

Source: Based on Rhodes et al (1994) and Enterprise Zone evaluation evidence (HMSO, 1995)

5.5 Gross to net additionality ratios

Another way of comparing the additionality of projects is to consider their gross to net additionality ratios - the net additional outputs as a percentage of gross outputs.

The mid-term report into ten Single Regeneration Budget case studies²¹ included details of aggregated additionality ratios by project outputs. These ranged from 30% for the number of full-time equivalent jobs safeguarded to 80% for the number of employee volunteering schemes. A detailed table showing net additionality ratios for 61 different outputs is included in Appendix G.

²¹ Department of Transport, Local Government and the Regions (DTLR) - Neighbourhood Regeneration: Lessons and evaluation evidence from ten Single Regeneration Budget case studies. (Number 1, 2002)

Conclusion

6

This Guide has explained how to appraise the additional impacts of a project, using evidence-based judgements.

The preceding discussion has made it clear that the assessment of additionality forms a critical part of any project appraisal. It is recognised that assessing additionality is not always a straightforward process, and it requires project knowledge and judgement as well as information on which to base an assessment of leakage, displacement, substitution, multiplier effects and deadweight. However, without an assessment of additionality we do not know what the project is adding over and above what would have happened anyway. In the absence of this information we cannot tell if the project offers good value for money.

This document has identified a number of issues that must be addressed if a project's additionality is to be correctly assessed and where possible maximised:

- What would happen anyway (the reference case)?
- Who do we want to benefit and will they?
- Will activity elsewhere in the target group or area be reduced?
- Will there be additional benefits as a result of further expenditure?

Good practice is to always use values derived from local experience and research. In the absence of such primary information, project developers and appraisers may on occasion need to use ready reckoner values referred to in this Guide for the different additionality factors. Where these are used justification will be needed as to their appropriateness. They must not be used as replacements for detailed, project specific knowledge and research. In assessing additionality, the important thing is not to calculate a spuriously precise figure, but rather to be clear about the likely scale and nature of a project's additional impacts. Like many other aspects of economic appraisal it is possible to contrive figures - using the additionality assessment in this way is a waste of time.

The process of assessing additionality is more than an input into the value for money judgement. It is relevant to all stages of a project's lifecycle. It can be used in a positive way as a tool that the project developer should use to test the project as it is developed, with a view to re-designing it so that:

- as many of the outputs as possible reach the intended beneficiaries
- existing outputs/outcomes are not unintentionally displaced
- linkages are made to maximise the benefits
- the public sector does not support activity that individuals or the private sector or other organisation would have done anyway

Overall, the assessment of additionality is an important element in maximising the impact and value for money of a project and ensuring that it delivers real results.

Glossary

Additionality	The extent to which an activity is undertaken on a larger scale, takes place at all, or earlier, or within a given geographical area as a result of the project. Thus, an impact arising from a project is additional if it would not have occurred in the absence of the project.
Baseline	A description of conditions existing at a point in time against which subsequent changes can be detected through monitoring. A baseline study is also required in order to establish what the conditions would be if development were not to take place. Conditions may not be stable even in the absence of development; there may be decline, improvement or cyclic conditions.
Deadweight	Output that would have occurred without the project.
Displacement	The proportion of project outputs accounted for by reduced outputs elsewhere in the target area.
Leakage	The proportion of outputs that benefit those outside of the project's target area or group.
Market failure	A situation where barriers exist to the normal and efficient operation of a local economy. Examples may include information barriers, where local people do not know about nearby job vacancies.
Multiplier effects	Further economic activity (jobs, expenditure or income) associated with additional local income, local supplier purchases and longer term effects.
Outcomes	The wider effects or impact on an area of a project, for example the reduction in crime level over a set period of time.
Outputs	The physical products or measurable results of individual projects, for example, the number of firms assisted and training places taken up.
Reference case	The position in terms of target outputs over a set period of time if the project/intervention did not take place.
Substitution	Where a firm substitutes one activity for a similar activity (such as recruiting a different job applicant) to take advantage of public sector assistance.
Target area	The area within which benefits will be assessed.

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DoE (1989)	Evaluation of Garden Festivals
DETR (2000)	Final Evaluation of City Challenge
DETR (October 2000)	New Deal for Communities and the Single Regeneration Budget Project Appraisal and Approval
DTLR (2002)	Neighbourhood regeneration: Lessons and evaluation evidence from ten Single Regeneration Budget case studies
HM Treasury (2003)	Appraisal and Evaluation in Central Government (known as The Green Book)
HMSO (1987)	Evaluation of the Enterprise Zone
HMSO (1990)	Evaluation of Regional Selective Assistance
HMSO (1995 A)	Evaluation of the Enterprise Zone
HMSO (1995 B)	Evaluation of the Enterprise Zone
HMSO (1995)	Evaluation of DTI Funded TEC Services in Support of Small and Medium Sized Businesses
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Appendix A

Major changes since the first edition of this guide

Changes since the first edition (July 2001) of this Guide

There are two principal changes since the first edition of this Guide as follows:

(i) **Treatment of deadweight**

This second version of the Guide explains that deadweight will normally now be assessed by the development of a reference case ('do nothing' and 'do minimum' scenario). Previously, deadweight was often handled as an adjustment to the intervention option.

(ii) **Treatment of leakage**

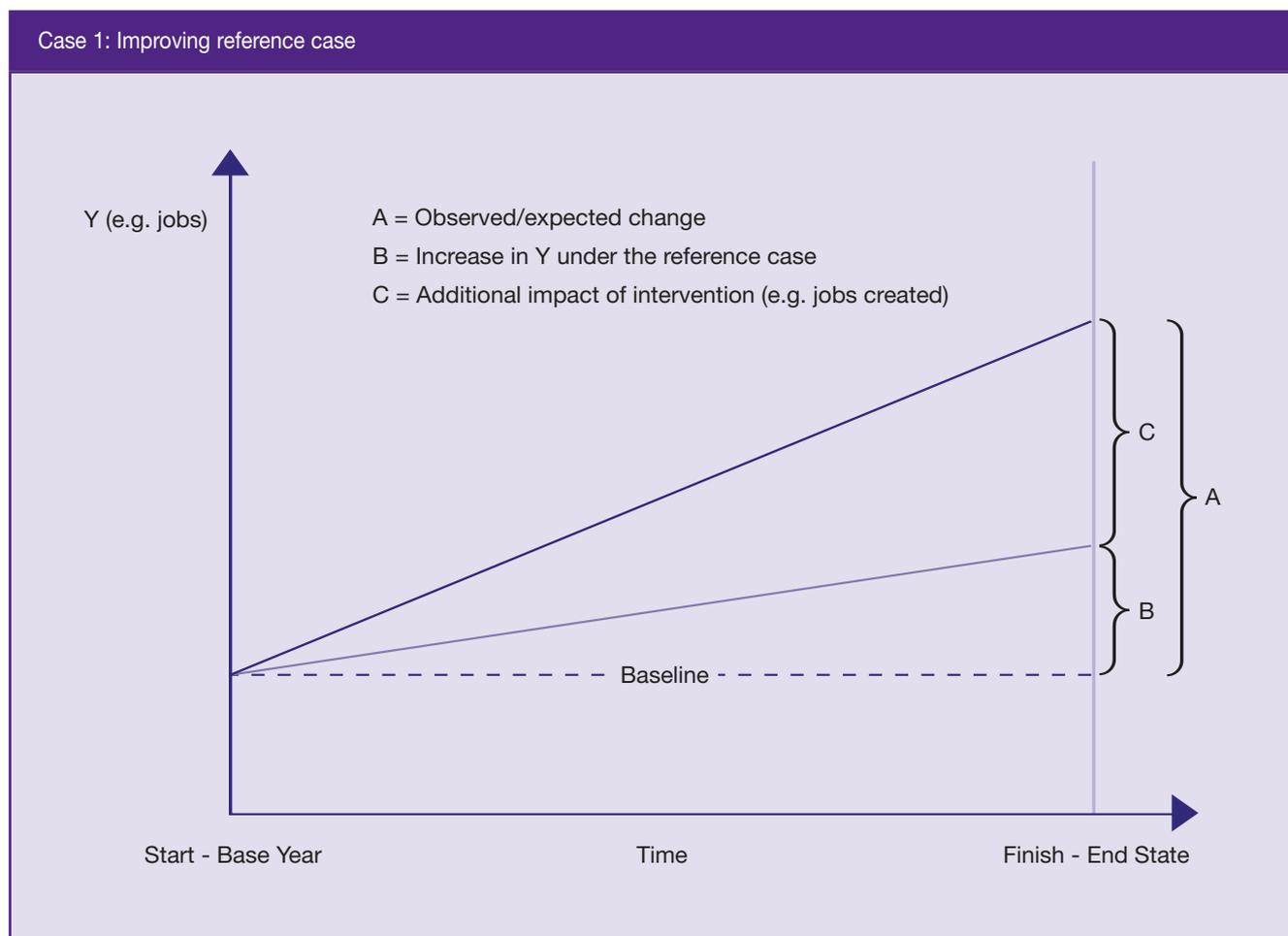
This Guide includes a more detailed discussion of leakage and how it should be applied as part of the additionality calculation. The application of leakage to physical outputs is, for example, specifically addressed.

Appendix B

Illustrations of additionality in the context of different reference cases

Illustrations of additionality in the context of different reference cases

This Annex provides illustrations of three different reference cases. The first case involves an improving reference case where the intervention involves an additional improvement. The second case involves a deteriorating reference case, but where the improvement associated with the intervention is sufficient to deliver a net overall improvement. The third case is one showing a deteriorating reference case, where the intervention partially offsets this deterioration, but not totally – leading to a net deterioration – but not as large as the one that would have occurred without the intervention.



Appendix C

Intervention options

Intervention options

The public sector intervenes to achieve specific objectives and generate particular outputs and outcomes in a specified period of time. There will always be a number of alternative options or ways in which the public sector might intervene. As a minimum these will include: different timings; increasing or decreasing the scale of investment; increasing or decreasing the quality of the outputs, and varying the delivery arrangements. Whilst not all of these will be feasible options in each case very few, if any, projects could not be delivered in a different way and still meet the majority or all of their objectives.

The identification and assessment of alternative intervention options is central to project appraisal. Without a proper assessment of the options it will be difficult to have confidence in any assessment of the value for money of the project. Comparing the project option alone with the reference case will tell you only about the additionality of that option, it will not tell us whether or not greater additionality and more value for money could be achieved by delivering the project in a different way.

It is usual to start the process by generating and reviewing an initial list (long-list) of intervention options. In drawing up the initial list it is good practice to consult those who are the intended beneficiaries, others who have experience in delivering similar projects and internal or external experts. Where this initial list is too long to appraise all options, the list can be reduced to a shorter list using appropriate criteria. The short-listing criteria could include constraints of a physical, legal or planning nature that make the project not feasible or it could be based on an analysis that showed some options were better than others at producing the same or more outputs at less cost.

The options on the shorter list - which, depending on project size or nature, should include at least four options - will then be subject to detailed appraisal. The full range of outputs and outcomes of the short-listed option need to be identified, then the level and timing of them estimated.

Appendix D

Crowding out and crowding in

Crowding out

(i) Definition

Crowding out

The tendency for outputs (other than those that increase the rate of capacity growth through a supply side improvement) to be entirely offset because of macro-economic adjustments

(ii) Examples of crowding out

Crowding out is a specific case of an impact that needs a slightly different type of consideration. In assessing additionality there should be some recognition of the Government's overall macro-economic policy which determines the overall level of demand in the economy. That policy is currently aimed at ensuring that, over the longer term, expansion of demand is broadly in line with increases in capacity. This implies that boosting prosperity is a matter of raising the rate of capacity growth, through supply side improvements, as this will allow demand to be expanded without generating inflation. Thus, increasing economic activity through programmes and policies that do not increase capacity growth will be totally offset elsewhere in the economy, either directly through displacement or indirectly through higher taxes, interest rates and wages as a consequence of the extra Government expenditure. This indirect impact is called crowding out and it implies that if there is no supply side impact associated with an intervention then no additional outputs will be generated at the national level.

(iii) Factors affecting the scale of crowding out

This will largely be determined by the extent to which the impacts arise as a result of supply side improvements. Where a specific impact arises as the result of a supply side improvement there is no reason to expect that there will be a compensating macro-economic adjustment. This will need to be taken into account when an intervention has a range of impacts only some of which have an impact on the supply side of the economy.

(iv) Approaches to estimating

Crowding out is of most relevance in relation to impacts at the national level and hence a degree of proportionality must be applied in taking the effect into account. Typically it will be more important in the case of policies and programmes. Large projects, or projects where the costs and benefits are finely balanced, however may also need to consider the effect. It may be assumed that:

- for areas covering up to 5% of the UK working population²², crowding out can reasonably be ignored
- for areas of 5-20% of the UK working population, it is reasonable to present results without taking account of crowding out so long as this is explicitly stated

For programmes covering more than 20% of the UK working population, explicit account should be taken of crowding out, and estimates of net outputs reduced accordingly. It should be assumed that in the absence of a demonstrated supply side improvement, crowding out is 100% at the national level.

²² Population is used here as a proxy for the magnitude of the impact. This will be relevant to some but not all interventions. An alternative would be the share of UK GDP.

Crowding in

It is also possible that a project might result in crowding in effects, whereby variables in the economy adjust and result in an increase in private expenditure.

Appendix E

Evidence from evaluations and research on deadweight

Table E.1: What companies would have done had the Enterprise Zone not been designated -
All firms employment weighted %

Delayed start up	4.8%
Cancelled start up	1.6%
Reduced employment	4.0%
Gone elsewhere in local area	37.6%
Gone elsewhere in region	23.5%
Gone elsewhere in UK	16.6%
Gone abroad	1.0%
No effect	10.9%

Source: Evaluation of Enterprise Zones (HMSO, 1995)

Table E.2: Gross local additionality of Enterprise Zone measures, all Zones (% firms)

Action without Enterprise Zone designation	Start-ups	Transfers/ branches	Pre-designation firms
<i>Additional activity:</i>			
Located outside the local area	24%	27%	21%
Cancelled start	8%	2%	1%
<i>Partly additional activity:</i>			
Reduced size	5%	4%	4%
Delayed start	10%	4%	0%
<i>Non-additional activity:</i>			
Gone elsewhere in local area	44%	54%	48%
No effect	8%	10%	26%
Number of respondents	279	612	73

Source: Evaluation of Enterprise Zones (HMSO, 1995)

Table E.3: Differences in additionality of Enterprise Zone measures by sector (% firms)					
Action without Enterprise Zone designation	Manufacturing	Construction	Distribution	Retail	Other
<i>Additional activity:</i>					
Located outside the local area	32%	21%	21%	16%	22%
Cancelled start	2%	5%	1%	8%	6%
<i>Partly additional activity:</i>					
Reduced size	6%	8%	2%	4%	4%
Delayed start	5%	8%	5%	6%	6%
<i>Non-additional activity:</i>					
Gone elsewhere in local area	48%	50%	57%	59%	49%
No effect	8%	8%	14%	8%	13%
Number of respondents	429	38	169	145	174

Source: Evaluation of Enterprise Zones (HMSO, 1995)

Appendix F

Housing and additionality

1.0 Introduction

This appendix presents further examples of how to assess the additional impact of housing programmes and projects. It also identifies some of the key sources of information needed to assess additionality in relation to housing.

The appendix includes examples of housing projects within both low demand and growth areas. Like the rest of the Additionality Guide the focus in this appendix is on project appraisal and therefore an ex-ante assessment of expected impacts.

2.0 Additionality in low demand and growth areas

The additionality framework needs to be applied with due care and consideration in different situations – with thought given to the rationale/objectives for intervening and the market and policy contexts. Thus, for example, interventions that lead to increasing house prices in low demand areas could be seen as a positive market development, but would probably be negative in a growth area.

In relation to low demand areas, the focus will often be on changing the scale and nature of demand within a specific location. As such, supply-side interventions are undertaken in order to stimulate increased demand by enhancing the attractiveness of the area.

Conversely, in growth or high demand areas, interventions may be concerned with increasing affordability - for example, by increasing the supply of affordable or key worker homes to meet existing unmet demand, thereby increasing household numbers. There may be an increase in household formation in the intervention option and care must be taken when assessing displacement. New households that would otherwise not have existed would not be displaced. They will also result in other wider benefits, such as reducing travel distances, by altering commuting patterns and allowing people to live closer to work. The rationale for intervening will often be about ensuring sufficient local supply of key workers, such as teachers and nurses.

Whilst the additionality framework can in principle handle these differences, it will need to be applied flexibly and thoughtfully - not as a template to be imposed mechanically.

3.0 Examples of how to assess the additionality of a housing programme or project

3.1 Programme level additionality

In developing a programme, additionality can be considered through:

- an overall assessment of expected changes in conditions (**the macro or top-down approach**) under different scenarios.
- assessing each of the factors (leakage, displacement/substitution, multiplier effects and deadweight) in turn, based upon aggregating programme/project level activities (the micro or bottom up approach). This involves making evidence-based judgements and being explicit about the assumptions for each additionality factor and the expected implications of a set of actions.

The **macro approach** would typically be based upon trend analyses or forecasting models, again comparing reference and intervention options. Model-based approaches can allow the potential repercussions off the direct causal chain to be considered. However, in many cases producing such forecasts is not straightforward and will involve subjective judgements about underlying assumptions. A wide range of indicators could potentially be assessed, including:

- changes in stock and changes in the stock in long-term or sustained demand, that is housing units for which there is expected to be long-term demand. A distinction needs to be drawn between occupation demand (from owners and for rent) and non-occupation demand (buy to let and speculative). The latter will have a price effect but may or may not result in occupation of the stock. In most cases it is the former which will be the primary concern.
- changes in the condition of the stock.
- changes in the relative price of the stock and total stock value.
- changes in rates of out-migration (as a measure of resident satisfaction).
- changes in the tenure mix (again as a measure of social change and willingness to buy and thus confidence or the addition of a new type of dwelling, e.g. low cost home ownership to meet a defined need).
- levels of private sector investment in the stock.
- supporting socio-economic indicators.

In undertaking a **micro-based approach** the expected trends in key variables, such as changes in household formation, will still need to be considered. The appropriate output/outcome indicators will need to be identified for any given intervention, but the range of indicators will be the same as those for the macro-approach. For most housing projects, a combination of indicators may need to be considered, which could be drawn from the following, depending on the objectives of the project.

- housing units which are in sustained demand. Care needs to be taken because housing units can differ significantly in their scale and nature – for example, a one-bedroom flat and a five-bedroom detached house. The appropriate type of housing unit for any specific project should be determined by reference to the policy objectives and the rationale for intervening.
- sustained change in housing stock value – such effects can be very difficult to measure on an ex-ante basis and considerable care will need to be taken in using this indicator.
- condition of the stock.
- wider impacts - including local environment and quality of life.

In each case, information and evidence would need to be provided concerning amongst other things:

- Key assumptions – the rationale for the assumptions used in assessing additionality. This would normally include information about key market segments and specific areas or neighbourhoods.
- Phasing and timing issues – consideration of the likely effects over time.
- Sensitivity analysis – consideration of the effect of varying key assumptions. This would be linked to key market drivers and to the risk assessment for the programme or project.
- Monitoring – details of the monitoring framework, including the indicators to be tracked, that will be established to monitor additionality and, in particular, displacement effects.

3.2 Project level additionality

3.2.1 Growth area examples

(i) Example 1 - New build housing project

In developing a project, as with a programme, additionality can be assessed by considering each of the factors in turn. For example, for a project involving the development of 120 new housing units on a cleared site, of which 30% will be affordable, for which there is believed to be long-term demand, the following factors would need to be considered at the growth area level:

- **Reference case (deadweight)** – for this example, if it is expected that 20% of the units developed on the site would have been affordable anyway in line with the local plan requirement. The original scheme would have been constructed at a lower density, with some 100 units likely to have been delivered. Thus, 20 affordable units would be the gross direct effects under the reference case.
- **Leakage** – if non-target households²³ (i.e. those earning more than the minimum level specified) were to occupy any of the affordable units then leakage would occur. However, only those people on the council's list would be allowed to occupy the affordable homes and therefore leakage would be zero in both the reference and intervention case options.

²³ Care needs to be taken when assessing leakage in relation to a sub-set of households within target area. Changes in relation to the target households may have positive or negative effects on other households within the target area.

■ **Displacement/substitution** – if demand for the units is expected to come from outside of the local area or from households that would not otherwise exist then no displacement would occur. In this case, there is excess demand for affordable housing and, as such, no displacement.

■ **Multiplier effects** – since the focus of this analysis is on housing units then this factor is not relevant in this case.

Table F.1 shows how the example would be worked through to calculate project level additionality in terms of the number of affordable units in sustained demand.

		Intervention option	Reference case
A	Gross direct effects	36	20
B	Less leakage from target group/area	0	0
C = A - B	Gross local direct effects	36	20
D	Less displacement/substitution	0	0
E = C - D	Net local direct effects	36	20
F	Plus multiplier effects	-	-
G = E + F	Total gross local effects	36	20
H = G (intervention options) - G (reference case)	Total net additional local effect	16	

The total net additional local effect of the project will be 16 affordable residential units in sustained demand (the total net effect for the intervention option minus the total net effect for the reference case).

In this case the project is not expected to result in the stimulation of additional, unassisted developments, although some stimulation of confidence is expected. However, it will result in a range of wider benefits that will also need to be considered in the appraisal. These might include environmental benefits as a result of removing an eyesore, as well as demonstration effects that will help to change developer and occupier perceptions of the area.

(ii) Example 2 - Major brownfield housing development in a growth area

A major housing scheme, comprising 600 homes with 40% key worker and associated employment and leisure uses, is proposed on a brownfield site within a growth area with public support. The site is located within walking distance of the city centre. The scheme will include high design and other standards. As a result of the ground conditions, the affordable housing component and high standards the scheme needs public sector funding. Without the project, the less contaminated portion of the site, which is relatively easily developed would be expected to come forward, providing 200 homes.

The project is designed to help accommodate the significant growth in households that is projected in the growth area and specific criteria will be imposed in selecting potential occupiers for the key worker housing for which there is also very substantial demand – as such, leakage is expected to be zero. In terms of displacement there is unmet demand and, as such, product market displacement is also zero. However, factor market displacement, as a result of the limited availability of construction resources is expected to occur. The level of factor market displacement is estimated to be 10%.

Table F.2 shows an assessment of the total net additional local housing units in sustained demand.

		Intervention option	Reference case
A	Gross direct effects	600	200
B	Less leakage from target group/area	0	0
C = A - B	Gross local direct effects	600	200
D	Less displacement (factor ²⁴ and product market)/substitution	60	20
E = C - D	Net local direct effects	540	180
F	Plus multiplier effects	-	-
G = E + F	Total gross local effects	540	180
H = G (intervention options) - G (reference case)	Total net additional local effect	360	

²⁴ By bidding up prices.

3.2.2 Low demand area examples

(i) Example 3 - Mixed use refurbishment

In this example, it is assumed that public sector support has been requested towards a project on a canal-side former mill complex in a low demand area that will deliver a mixture of commercial development and housing in a variety of new and refurbished buildings. The mill complex is Grade II listed.

The target area for the project is the site itself and the wider regeneration area. It is expected that the project will deliver 50 housing units and 2,000 sq m of commercial floorspace (assumed to be B1 office space). Without public sector support it is likely that one of the former mill buildings on the site, which is in the best state of repair, would be brought forward by the private sector and would deliver approximately 20 housing units and 500 sq m of commercial floorspace. It is not expected that the project will cause a large decrease in the number of housing units built elsewhere in the target area since demand is low, although because of the nature and quality of this scheme sustained demand is anticipated. As such a displacement rate of 20% has been assumed.

The objective of the public sector supporting the housing component of this project is to generally attract new residents to the area. Thus leakage of housing benefits is not considered an issue in this case. However, jobs taken by people outside of the regeneration area has been assessed.

Table F.3 sets out an assessment of the net additional housing units in sustained demand generated by the proposed intervention option at the level of the site itself and at the target area.

		Intervention option		Reference case		Additionality	
		Site level	Target area level	Site level	Target area level	Site level	Target area level
A	Gross direct housing units	50	50	20	20		
B = Not applicable	Estimated leakage	N/A	N/A	N/A	N/A		
C = A - B	Gross local direct effects	50	50	20	20		
D = estimated displacement	Displacement – 20%	0	10	0	4		
E = C - D	Net local direct effects	50	40	20	16		
F = Not applicable ²⁵	Multiplier	N/A	N/A	N/A	N/A		
G = E + F	Total gross local effects	50	40	20	16		
H = G (Intervention option) – G (Reference case)	Total net additional local effects					30	24

²⁵ There may be multiplier effects of the expenditure associated with the housing construction, the 'not applicable' refers to the likelihood that this spend will not result in more housing units being built.

Table F.4 considers the net additional employment outputs at the target area level. The site level has not been considered in this case since the focus is on creating local employment opportunities.

Table F.4: Employment in low demand areas – target area levels			
		Intervention option	Reference case
A (at 20 sq m per job)	Gross direct employment	100	25
B = estimated leakage	Estimated leakage - 20% (Jobs taken up by people resident outside of the target area)	20	5
C = A - B	Gross local direct employment	80	20
D = estimated displacement	Displacement - 40%	32	8
E = C - D	Net local direct employment	48	12
F = Combined income and supply multiplier	Multiplier at 1.2	10	2
G= E + F	Total gross local effects	58	14
H = G (Intervention option) – G (Reference case)	Total net additional local effects	44	

Table F.5 considers the overall effects of housing and employment at the site and target area levels.

Table F.5: Housing in low demand area (housing units in sustained development) – at site and target area levels						
	Intervention option		Reference case		Additionality	
	Site level	Target area level	Site level	Target area level	Site level	Target area level
Gross direct housing units in sustained demand	50	50	20	20	50	50
Gross to net housing additionality effect	100%	80%	100%	80%	60%	48%
Total net additional local housing effects	50	40	20	16	30	24
Gross direct employment	100	100	25	25	100	100
Gross to net employment additionality effect	-	58%	-	56%	-	44%
Total net additional local employment effects	-	58	-	14	-	44

Note: This table presents the results of the calculation of additionality in a slightly different way.

(ii) Example 4 - Student housing

Another example of how project level additionality can be assessed using a more qualitative approach is set out in Table F.6. In this case, the key output and outcome areas to be considered are housing and economy. The analysis includes discussion of both supply and demand side displacement.

Table F.6: Student housing in low demand area		
Programme:	Student housing	
Intervention option:	Subsidised refurbishment of 100 vacant housing units ²⁶ for students by the local university	
Reference case:	Ad hoc refurbishment of 20 units based on past trends	
	Housing	Economy
Leakage	<ul style="list-style-type: none"> No leakage due to project design (i.e. units exclusively for students). 	<ul style="list-style-type: none"> Students spend outside area. Issue of supply of local facilities to meet demands from students (e.g. local fast food restaurants). Further investigation and possible linked programme.
Displacement	<ul style="list-style-type: none"> It is estimated that 10 of the students would have occupied private rented accommodation in the low demand area. However, much of this is in a poor state of repair and would give students a lower standard of living. Issue about potential future vacancies in private rented stock. Linked to private rented programme which forms another strand of low demand area regeneration activity. Students may be disruptive and cause other residents to move away. Careful choice of units and design of works is required. Students would have found accommodation in wider area (say sub-region), therefore the vast majority of demand will be displaced at this level (i.e. it is existing demand rather than new at the sub-regional level). 	<ul style="list-style-type: none"> Reduction in private rented/room letting and the economic activity associated with this. Students cause other residents to move away resulting in a loss of local expenditure. At the wider level, the vast majority of this economic activity would have happened anyway since the students would have been spending their student loans elsewhere.
Economic multipliers	<ul style="list-style-type: none"> Not relevant because the focus is on housing outputs and outcomes. 	<ul style="list-style-type: none"> Purchases by local shopkeepers due to increased turnover and increased local spending as a result of greater local incomes.
Deadweight	<ul style="list-style-type: none"> 20 units would be expected to be provided anyway through refurbishment. The remaining 80 units would, on the basis of past trends, have remained vacant. 	<ul style="list-style-type: none"> Economic activity associated with the 20 units.
Net additionality	<ul style="list-style-type: none"> Likely to result in additional quantitative and qualitative benefits at the local, low demand area level. Careful choice of units and design will be needed to ensure that student accommodation does not result in disruption to existing households. The majority of the students would not have been living in the low demand area in the absence of this programme. At the wider sub-regional level the demand would have arisen anyway and therefore the activity in a quantitative sense would not be net additional. However, there would be qualitative benefits in terms of the standard of accommodation. The areas from which demand is likely to be displaced are significantly more buoyant than the target low demand area. <p>Wider level, net additional benefits would include positive environment affects and increased vitality of the area. Vacancy rates would be reduced.</p>	<ul style="list-style-type: none"> Again net additional local benefits would be expected, although the availability of appropriate facilities will require further consideration. At the wider level the majority of the student related economic activity is likely to be displaced.

²⁶ Care needs to be taken to ensure that where housing units are being considered that the nature of the units delivered under each scenario is comparable. Where this is not the case and different market segments are being targeted, then significant care needs to be taken in assessing additionality and in undertaking the project appraisal more generally.

3.2.3 Examples of how to use the ready reckoners in housing projects

A project is being assessed at a growth area level and involves the provision of 50 starter homes. In the absence of the project it is estimated that only five starter homes would otherwise come forward in the area. However, some of these new households would have been expected to find local accommodation in the form of older, poor quality stock. Thus, the project would result in qualitative benefits. Based on local market information and answering the questions set out in this Guide, the expected additionality effects in relation to the number of units in sustained demand at the growth area level are estimated as follows:

Table F.7: Ready reckoner assumptions - starter homes in growth areas

	Intervention option	Reference case
Leakage	Low – 10%	Low – 10%
Displacement/substitution	Medium – 50%	High – 75%
Multiplier effects	N/A	N/A

Table F.8 presents a quantitative assessment of additionality for the starter homes project at the growth area level.

Table F.8: Ready reckoner worked example - starter homes (growth area level) - units in sustained demand

		Intervention option	Reference case
A	Gross direct effects	50	5
B	Less leakage from target group/area i.e. homes going to none target group (Intervention –10% & reference case –10%)	5	1
C = A - B	Gross local direct effects	45	4
D	Less displacement (factor and product market) substitution (Intervention – 50% and reference case – 75%)	23	3
E = C - D	Net local direct effects	22	1
F	Plus multiplier effects	N/A	N/A
G = E + F	Total net local effects	22	1
H = G (intervention option) - G (reference case)	Total net additional local effects	21	

Another example would be a project to promote executive homes within a low demand area. In this case, the level of additionality, at the low demand area level, would be significantly higher since very little of this activity would have taken place anyway. In this example, it is assumed that 100 executive homes would be constructed under the intervention option and none under the reference case. For this project, the expected additionality effects, based on local market analysis and land use planning allocations at the low demand area level, are as follows:

Table F.9: Executive Homes – low demand area level

	Intervention option	Reference case
Leakage	None - 0%	None - 0%
Displacement/substitution	None - 0%	None - 0%
Multiplier effects	N/A	N/A

As a result, the total number of net additional executive homes would be 100 at the low demand area level (i.e. 100 less zero).

However, the level of additionality of the executive homes project would be significantly lower at the sub-regional level. The project would be expected to draw demand from both the city centre and sub-urban areas, where demand is high. The estimated level of additionality, based upon market analysis, are as follows:

	Intervention option	Reference case
Leakage	None - 0%	No homes built in area
Displacement/substitution	High - 75%	No homes built in area
Multiplier effects	N/A	N/A

Table F.11 presents the results of the assessment of additionality at the sub-regional level.

		Intervention option	Reference case
A	Gross direct effects	100	0
B	Less leakage from target group/area (Intervention and reference case – 0%)	0	0
C = A - B	Gross local direct effects	100	0
D	Less displacement (factor and product market) substitution (Intervention – 75% and reference case - zero)	75	0
E = C - D	Net local direct effects	25	0
F	Plus multiplier effects	N/A	N/A
G = E + F	Total net local direct effects	25	0
H = G (intervention option) - G (reference case)	Total net additional local effects	25	

4.0 Information sources

A wide-range of data will need to be considered to assess additionality in relation to a housing programme or project.

In order to make informed decisions about what programmes and projects will minimise negative effects and to ensure that the maximum additional benefits are being delivered, information will be required on a range of subjects, including potentially:

(i) Population, migration, household and economic forecasts

These forecasts should include information about areas within and outside the intervention area boundary. They provide the framework within which the assessment of additionality will be undertaken. The economic, social and other factors that have been assumed to drive or underpin the forecasts should be explained and the likely housing implications considered. Wherever possible forecasts should relate to the specific areas of impact under consideration and consider the type of housing demanded. Alternative future scenarios will often need to be considered to test the robustness of the proposed programme or project.

(ii) Policy context and other public sector initiatives

In particular, planning, housing and economic development policies will need to be reviewed. These will include the Regional Housing Strategy (RHS), Regional Planning Guidance (RPG) and Regional Economic Strategies (RES), as well as local policies, such as Unitary Development Plans (UDPs) and, in particular, housing policies. In addition, other public sector initiatives, in particular those concerned with regeneration, education and health will need to be considered.

(iii) Existing and forecast housing land supply

This should be based upon existing and proposed RPG, UDP and other housing policies, together with an assessment of outstanding planning permissions, within the various areas of impact and broken down into market segments (including type of dwelling and tenure). Alternative housing land supply scenarios may, again, need to be developed and tested.

(iv) Housing market conditions

This will include an analysis of current conditions and past trends for the local and wider area. The types of data that will need to be considered include: house prices; land prices; rental levels; stock by type of dwelling and tenure; sale periods; turnover within the stock; vacancy rates by type and void information and housing management data for social rented accommodation. It will often be necessary to assemble and analyse neighbourhood level data to understand how the housing market is operating within a local area.

(v) Affordability

Housing Needs Studies, income and house price data, information from key local public sector employers, e.g. Police and National Health Service (NHS).

(vi) Surveys

These are likely to be a key source of data in assessing leakage, displacement and deadweight. Information may be collected from a number of primary sources:

- Individual/households – can be questioned about their views, likely future needs, aspirations, attitudes and location decisions.
- Direct questioning of developers – on their expected behaviour and on their proposed approach to marketing and expected sources of demand.
- Mover/beneficiary survey – occupiers of recent developments, supported projects or in/out movers, can be questioned about where they moved from, why and what they would have done if the homes they moved to were not available.
- Focus groups – detailed discussions with groups of, for example, residents or recent movers can be useful in providing in-depth discussions about complex residential choice decisions.
- Other specific surveys – for example, housing chain surveys to determine in detail the nature of housing movements within and beyond the local area.
- Business views, again obtained using surveys.

(vii) Monitoring data and evaluation results

In each case the analysis should consider the likely timing of changes and these should be related to the nature and phasing of the programme or project.

In relation to displacement there are a number of specific indicators that may need to be assessed and then subsequently monitored, depending on the objectives of the scheme, these may include:

■ Housing stock, mix and condition/standard

Tracking changes in the total number and nature of the stock will be important in order to assess potential displacement effects. The information assembled should include data about the mix of housing (number of bedrooms, flat or houses), as well as the condition of the stock.

■ New starts and completions

The level of new development activity underway and completions should also be monitored. Identifying trends in activity within and outside the area can help to inform judgements about displacement.

■ Occupancy - Hard to let/vacancy/void rates

Vacancy is a further key indicator, and monitoring of adjacent areas will indicate whether problems being tackled in an area are being displaced to adjacent areas. Registered Social Landlords (RSL) are able to provide indicators of hard to let premises. Void rates are another useful indicator.

■ House prices and rental levels

The issue here is the extent to which they are affected by the programme or project, taking into account general trends. Property agents, financial institutions, the District Valuer and RSL's are good sources of this information.

■ Tenure patterns

Another key indicator is tenure mix, typically owner occupied, private rented, and social housing. Changes need to be monitored against typical conditions in the area itself and in other areas. Displacement often takes the form of 'gentrification' where relatively more affluent buyers force out lower income residents, who may be forced to move elsewhere.

■ Houses of Multiple Occupation (HMOs)

HMOs are an important indicator of pressures at the lower end of the private rented sector. Often, these will be displaced from the intervention area and move to adjacent areas, potentially causing social and environmental nuisance.

■ Turnover

Turnover can be an indicator of vitality in a housing market, but high levels could be an indicator of displacement. However, it might reflect the transitory nature of the areas and their populations. As such, careful analysis and cross-checking with, for example, survey results will often be needed if indicators like turnover are to be correctly interpreted.

■ Overcrowding

A further possible indicator, which may be relevant in a limited number of circumstances, is the degree of overcrowding where housing demand increases and housing supply is unable to cope.

■ Density/number of units

Density (and therefore the total number of units in an areas - in particular, occupied units) is again a possible factor in displacement. Typical low demand area terraced properties are a very efficient use of land, achieving 50-60 dwellings per hectare. Replacement dwellings may be at lower density (say 30 dwellings per hectare plus), which could also affect local businesses, especially shops and local services.

■ Building costs

Engineering the supply of housing in a local area will attract development activity, involving both main contractors and sub-contractors of various types. There may well be a tendency to 'bid up' prices, as well as to displace activity from other, non-supported surrounding areas. A measure of this would be to monitor local building cost inflation, which local quantity surveying firms could assist with.

■ Community

Many communities have remained together in lower cost housing because of the ability to house extended families in close proximity, and because they may not wish to take traditional forms of mortgage. Acquisition and re-housing of such families can bring significant displacement of communities to other adjacent areas, or indeed between urban areas in different parts of the sub-region. These displacement effects could be identified through surveys.

APPENDIX G

Appendix G

Net additionality ratios taken from SRB Evaluation

Table G.1: Gross local additionality of Enterprise Zone measures, all Zones (% firms)

	Description	Net additional outputs as % gross
Jobs, training and education		
1a1	Number of FTE jobs created	32
1a2	Number of FTE jobs safeguarded	30
1a3	Number of FTE construction jobs (person weeks)	33
1b	Number of pupils benefiting from projects assigned to enhance/improve attainment	54
1c	Number of people trained obtaining qualifications	58
1d	Number of residents accessing employment through training advice or targeted assistance	55
1e	Number of training weeks	62
1f1	Number of people trained obtaining jobs	48
1f2	■ Who were formerly unemployed	45
1g	Number entering self-employment	46
1j	Number of young people benefiting from projects to promote personal and social development	48
1k1	Number of employers in collaborative projects with educational institutions to improve student performance	62
1k2	Number of students in collaborative projects	50
1l	Number of teachers who have had a placement into business in the last period	60
Economic growth		
2a	Number of new business start-ups	31
2b1	Business/commercial floorspace improved (sq m)	27
2b2	New business/commercial floorspace (sq m)	44
2c1	New businesses supported	36
2c2	■ Surviving 52 weeks	36
2c3	■ Surviving 78 weeks	35
2d	Number of businesses advised as a result of SRB assisted activities	33

Table G.1: Gross local additionality of Enterprise Zone measures, all Zones (% firms) continued

	Description	Net additional outputs as % gross
Housing		
3a1	Number of private dwellings completed	48
3a2	Number of private dwellings improved	45
3a3	Number of local authority dwellings completed	-
3a4	Number of local authority dwellings improved	37
3a5	Number of housing association dwellings completed	39
3a6	Number of housing association dwellings improved	-
3b	Number of dwellings in tenant management organisation	65
Community safety/crime prevention		
5a1	Number benefiting community safety initiatives	53
5a2	■ Aged over 60	46
5a3	■ Females	44
5b1	Number of dwellings with upgraded security	51
5b2	Number of commercial buildings with upgraded security	56
5c	Number of community safety initiatives	54
5d1	Number of youth crime prevention initiatives	51
5d2	■ Numbers attending crime prevention initiatives	63
Environmental improvements		
6a	Land improved/reclaimed for open space (ha)	58
6b	Land improved/reclaimed for development (ha)	58
6c	Number of buildings back into use	53
6d1	Roads built (km)	-
6d2	Roads improved (km)	67
6e	Number of traffic calming schemes	60
6f	Number of waste management/recycling schemes	50

Table G.1: Gross local additionality of Enterprise Zone measures, all Zones (% firms) continued

	Description	Net additional outputs as % gross
Community facilities		
7a1	People with access to new health facilities	66
7a2	People with access to new sport facilities	66
7a3	People with access to new cultural facilities	66
7a4	Number of new health facilities	60
7a5	Number of new sports facilities	64
7a6	Number of new cultural facilities	65
7b1	Numbers using improved health facilities	66
7b2	Numbers using improved sports facilities	62
7b3	Numbers using improved cultural facilities	66
7b4	Number of health facilities improved	52
7b5	Number of sports facilities improved	61
7b6	Number of cultural facilities improved	63
Voluntary/community sector		
8a1	Number of voluntary organisations supported	68
8a2	Number of community organisations supported	75
8c	Number of individuals involved in voluntary work	65
8d	Number of employee voluntary schemes	80
8e	Number of community enterprise start ups	77
Childcare		
10a	Number of childcare places provided	65

Steve Carr, English Partnerships
Simon Dancer, English Partnerships
Graham Russell, AMION Consulting

In association with:

Dr Peter Tyler, University of Cambridge
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Creating sustainable communities

Copies of this Guide can be downloaded at: www.englishpartnerships.co.uk/additionality

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